THE JOURNAL
of the American Medical Association
Published Under the Auspices of the Board of Trustees
VOL. 162, NO. 2 CHICAGO, ILLINOIS SEPTEMBER 8, 1956
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USE OF POLIOMYELITIS VACCINE UNDER EPIDEMIC CONDITIONS

REPORT OF OUTBREAK OF POLIOMYELITIS AMONG NAVAL PERSONNEL AND DEPENDENTS IN HAWAII

Capt. Robert S. Poos (MC), U. S. Navy
and
Neal Nathanson, M.D., Atlanta, Ga.

• *A program of vaccination against poliomyelitis was undertaken among 7,760 Navy families in Hawaii because there was reason to fear that an outbreak, until then concentrated in a single Navy housing area, might spread. The vaccinations were limited to married Navy personnel and their dependents and began Oct. 5, 1955. Epidemiological observations made during the epidemic showed that military and civilian nurseries were important in spreading poliomyelitis among preschool children, from whom the infection spread to their parents, older children, and other adults. After the mass vaccination program, attack rates were lower in vaccinees than in the unvaccinated population, although this difference was not statistically significant. Epidemiological and clinical data did not reveal any evidence of a provoking effect due to injections of poliomyelitis vaccine.*

An emergency poliomyelitis vaccination program was started in October, 1955, during a poliomyelitis epidemic among U. S. Navy personnel and their dependents in Hawaii. (Throughout this report, "Navy" refers to both U. S. Navy and U. S. Marine Corps.) This paper presents some of the observations made during the epidemic and is the first reported study of the mass vaccination of a population in which poliomyelitis was occurring at an epidemic rate.

Previous reports have shown that a formalinized virus vaccine is effective in the prevention of paralytic poliomyelitis.[1] However, these reports were limited to evaluations of the use of poliomyelitis vaccine during periods of relatively low incidence of the disease. There has been considerable discussion and some difference of opinion about the possible danger of the use of the vaccine when the incidence of poliomyelitis is high. The ability of the immunizing injections of diphtheria, pertussis, and tetanus antigens to provoke paralytic poliomyelitis was first reported in 1950 and has been repeatedly confirmed.[2] These reports have shown, with one exception, that provocation is associated with injections given within one month of onset of paralysis and that paralysis frequently involves the inoculated extremity. The provoking phenomenon has also been produced experimentally in monkeys by Bodian.[3] Therefore, there has been concern that injections of poliomyelitis vaccine during the "polio season" or at a time of high incidence of the disease might show a similar ability to provoke paralysis.

This problem was considered by the vaccine advisory committee of the National Foundation for Infantile Paralysis, by special consultants, and by representatives of certain professional groups at a meeting on June 18, 1955. The organizations represented included the American Medical Association, the American Academy of Pediatrics, the American Academy of General Practice, the American Public Health Association, the Association of State and Territorial Health Officers, and the U. S. Public Health Service. The unanimous opinion of the group[4] was that "the total preventive effect of the vaccine in a period of rising poliomyelitis incidence should be much greater than the possible hazard from the provoking effect of the injection." Those present also concluded that "the benefit to be gained by poliomyelitis immunization, in contrast to the small potential risk of provocation, increases in proportion to the severity of the poliomyelitis incidence, since a larger number of paralytic cases should be prevented during the entire period of the epidemic." Those concerned were confident that the severity of the Pearl Harbor epidemic could be modified, and the decision to carry out the Navy vaccination program was made with the knowledge that there was a small potential risk of provocation. An examination of all aspects of the present experience that relate to the provoking effect is made in a later section of this report.

From the U. S. Navy Preventive Medicine Unit No. 6, U. S. Naval Base, Pearl Harbor, Territory of Hawaii (Captain Poos), and the Communicable Disease Center, Public Health Service, U. S. Department of Health, Education, and Welfare (Dr. Nathanson).
Read before the Section on Preventive and Industrial Medicine and Public Health at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956.

Epidemiological Background

An estimated 43,660 Navy personnel and their dependents reside within Honolulu County. This population is composed of 16,500 single personnel, 7,760 married personnel, 7,760 dependent wives, and 11,640 dependent children. Approximately 90% of the married adults are in the 20-40 year age group. There are numerous opportunities for the introduction of an infectious disease into this resident population. Throughout the year, many thousands of Navy personnel aboard ships are in the area for a few days or weeks. Also, many Navy families in transit between the United States and Pacific stations visit Hawaii for a few hours or days. Since the usual tour of duty in this naval district is two years, about half of the resident Navy population leaves each year and is replaced by new arrivals. The monthly rate of arrival and departure varies with the season, rising to about 6% in the summer and falling to about 3% during the remainder of the year. In addition, although the majority of families live in Navy housing areas, they actively participate in

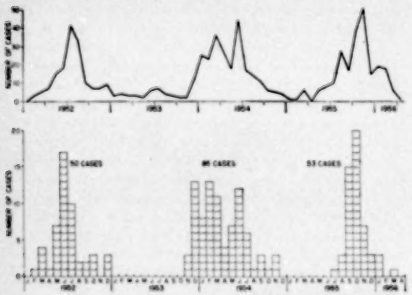

Fig. 1.—Total reported cases of poliomyelitis in Hawaii from 1952 to 1956 (top) and cases among Navy personnel and dependents (bottom).

all phases of civilian community life. Finally, and most important, is the fact that frequent and intimate contacts between civilian and military children of preschool age occur in civilian day nurseries, several of which are in constant use by Navy families in the Pearl Harbor area.

Many opportunities are available for the spread of infectious disease after introduction into the resident Navy population. Approximately 80% of the families live in Navy housing areas, where the active social life ensures frequent household contact between members of different family units. In each family there are, on the average, between one and two children, and in about 50% of the families there are infants or children of preschool age. An important source of intimate contact for these infants and preschool children is provided by the unofficial Navy nurseries and care centers operated as a community service for Navy families six days and three evenings weekly. Some Navy dependent children spend time in both civilian and military nurseries. All of these nurseries continued normal operations during the epidemic except the largest (Pearl Harbor Nursery), which was closed on Oct. 6, 1955. When this nursery was reopened two months later, admission was restricted to children who had received two poliomyelitis vaccinations. The resident Navy population is an excellent one for the epidemiological study of disease. Military medical care is available for personnel and dependents, both in Navy dispensaries and in the Tripler Army Hospital. Thus, the great majority of illnesses in the population are observed, treated, and recorded in these medical facilities. Detailed clinical records are kept on all individuals receiving medical care, and special records were made on all participants in the vaccination program.

During the past six years, three distinct outbreaks of poliomyelitis have occurred in Hawaii. These outbreaks are shown in figure 1, which presents the monthly incidence reported for Hawaii (taken from the Morbidity and Mortality Weekly Reports of the National Office of Vital Statistics) and monthly totals of cases among Navy personnel and dependents (taken from records of Preventive Medicine Unit No. 6 and the Tripler Army Hospital). Data from these sources are not strictly comparable, since total cases are tabulated by date of report, while cases among Navy personnel and dependents are tabulated by date of onset. It is apparent that during each outbreak of poliomyelitis in Hawaii a simultaneous outbreak occurred among Navy personnel and dependents. This suggests that poliomyelitis infections are spread between the civilian community and the Navy population. Records of the Territorial Department of Public Health show that since 1948 the incidence of poliomyelitis among military dependents residing in Hawaii has been considerably higher than in the local civilian population. The occurrence of poliomyelitis in Hawaii prior to 1953 has been reviewed by Enright.[5]

In a review of case records from the 1953-1954 epidemic among Navy personnel and their dependents, some significant observations were made. Of the total group of 85 cases with onsets in 1953 and 1954, 40 occurred in dependent children, 41 in married personnel and wives, and only 4 in single personnel. Moreover, of the 41 cases occurring among married adults, 36 (88%) involved families with one or more children under 5 years of age, although only about half of all families had children in this age group. These observations formed the basis of the decision to include married adults as well as children in the 1955 poliomyelitis vaccination program.

The 1955-1956 Epidemic

An outbreak of 53 cases of poliomyelitis, with two deaths, occurred between July 29, 1955, and March 2, 1956, among Navy personnel and dependents residing in Honolulu County on the island of Oahu, Territory of Hawaii. These cases, occurring in a population of 43,660, represented an attack rate of 121 per 100,000. The chronological development of the epidemic is presented in table 1 and figure 2. The 23 cases designated in figure 2 by a solid circle will be discussed in a later section dealing with vaccine effectiveness. Of the total of 53 cases, 2 had onset in the 30-day period ending Aug. 5, and 4 in the period ending Sept. 4, with a rapid rise to 13 cases in the period ending Oct. 4, and 24 cases in the period ending Nov. 3. In the next 30-

day period, ending Dec. 3, there was an abrupt drop to four cases, with only six scattered cases during the subsequent three months. Vaccinations were started on Oct. 5, so that the drop from 24 to 4 cases occurred

TABLE 1.—*Cases of Poliomyelitis by Date of Onset and Paralytic Status*

15-Day Period Ending	Paralytic	Non-paralytic	Total
8/ 5/55	..	2	2
8/20	..	..	..
9/ 4	4	..	4
9/19	4†	2	6
10/ 4	3	4	7
10/19	8†	4	12
11/ 3	5	7	12
11/18	..	1	1
12/ 3	2	1	3
12/18	1	..	1
1/ 2/56	1	..	1
1/17	..	..	..
2/ 1	1	2	3
2/16	..	..	..
3/ 2	1	..	1
Total	30	23	53
Rates per 100,000*	69	53	121
% paralytic			57
Case fatality rate			4%

* Calculated on population base of 43,600.
† With one death.

about one month after initiation of the vaccination program. Of the total of 53 cases, 30 (57%) were paralytic. Paralytic and nonparalytic cases ran a parallel time course, both reaching a maximum in October.

Figure 3 is a map of Honolulu County (island of Oahu) with the 53 cases shown according to residence of patient at time of onset. In the Pearl Harbor area

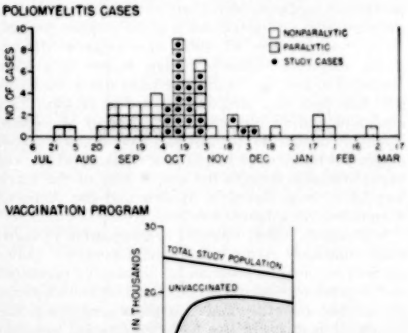

Fig. 2.—Outbreak of poliomyelitis and vaccination program.

there is a central concentration of housing (Navy housing areas 1, 2, and 3, Makalapa, Moanalua, and shipyard), with two additional housing areas (Pearl City and Radford Terrace) at some distance from the central group. About 40% of Navy families live outside the Pearl Harbor area, in the city of Honolulu, Kaneohe, Barber's Point, Nanakuli, and other sections not shown. Sixteen of the first 18 cases were among residents of the Pearl Harbor area. Eleven of the 16 cases in the Pearl Harbor area occurred in 530 officers' families

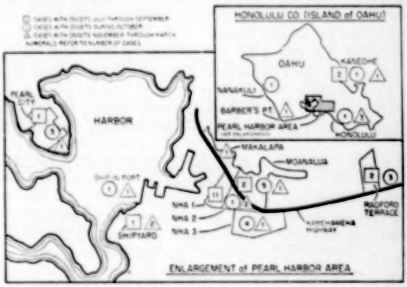

Fig. 3.—Distribution of cases of poliomyelitis.

residing in Navy housing area 1. The total attack rate from Aug. 26 to Sept. 30 for the resident population of Navy housing area 1 was 591 per 100,000.

Of the 11 patients from Navy housing area 1, 10 had a history of close contact with infants who had recently spent time in the Pearl Harbor Nursery. An intensive epidemiological study of the spread of poliomyelitis infection in a nursery school and to occupants of an apartment has been reported.[6] Although there were no recognized cases in Navy housing area 1 after Sept. 30, new cases developed later in adjacent housing areas, as shown in figure 3. This figure shows that 43 of the 53 cases during the epidemic were among residents of the Pearl Harbor area.

The character of the epidemic is further described in table 2, which presents paralytic and nonparalytic cases by age and marital status of the patients and

TABLE 2.—*Cases of Poliomyelitis by Age and Paralytic Status, with Age-Specific Attack Rates*

	Dependent Children				Married Personnel and Wives				Single Personnel	Total
	0-4	5-9	10-14	15-19	15-19	20-29	30-39	40 plus		
Population	5,086	4,389	1,815	340	256	6,813	7,387	1,004	16,500	43,600
Cases										
Paralytic	8	5	2			11	1		3	30
Nonparalytic	7	2			1	7	4		2	23
Total	15	7	2	...	1	18	5	...	5	53
Rates per 100,000										
Paralytic	157	114	110			161	14		18	69
Nonparalytic	138	45			391	103	54		12	55
Total	295	159	110	...	391	264	68	...	30	121

shows the populations from which they were drawn. All patients classified as having nonparalytic poliomyelitis were hospitalized, and the diagnosis was established after careful observation and only if the patient had systemic symptoms, meningeal signs, and cerebrospinal fluid lymphocytosis. Among children, the highest attack rates were in the 0-4 age group, with progressively lower rates for ages 5-9 and 10-14. Among married adults, the rates were higher for ages 20-29 than for ages 30-39. It is striking that rates among

married adults were over four times greater than rates among single adults. This difference, significant at the 0.002 level, is discussed below. (See the monograph by Francis and co-workers [14] for a review of the statistical methods used to compare rates.)

A further analysis of rates among married adults is presented in table 3. Cases in males and females and total populations are broken down according to ages of children in the family, with a further analysis of females according to pregnancy status. A factorial analysis is also presented. This analysis shows that (1) regardless of sex or pregnancy status, parents of children aged 6 months to 3 years had a significantly higher rate than married adults without children in this age group; (2) among dependent wives with children aged 6 months to 3 years, rates were significantly higher for pregnant than for nonpregnant women; and (3) among parents of children aged 6 months to 3 years there was no significant difference between rates for husbands and wives. Thus, it appears that the significant difference in rates among married compared to single adults is due to the very high rates in parents of children 6 months to 3 years and in pregnant women. As a corollary, the rate for married adults without children (37 per 100,000) is very close to that for single adults (30 per 100,000).

In each of the five cases among single Navy personnel there was a history of close contact, 10 to 15 days prior to onset of illness, with preschool-age children while visiting in the homes of Navy families in the Pearl Harbor area. Since relatively few single personnel have occasion to visit Navy families, these observations suggest that those adult patients with poliomyelitis who were not themselves parents of young children may have developed poliomyelitis through contact with young children having inapparent infections.

TABLE 3.—*Cases of Poliomyelitis and Attack Rates by Family and Paralytic Status**

Reported Data

Family Status	Population	Cases P†	Cases NP	Cases T	Rate per 100,000 P	Rate per 100,000 NP	Rate per 100,000 T
Military husbands	7,760	5	5	10	64	64	129
No children	1,273	...	1	1	...	79	79
All children under ½ yr.	171	...	...	...	...	...	...
Children ½-3 yr.	3,003	5	3	8	167	100	266
All children over 3 yr.	3,313	...	1	1	...	30	30
Nonpregnant dependent wives	6,901	1	4	5	14	58	72
No children	1,016	...	...	...	...	...	...
All children under ½ yr.	168	...	...	...	...	...	...
Children ½-3 yr.	2,594	1	4	5	39	154	193
All children over 3 yr.	3,123	...	...	...	...	...	...
Pregnant dependent wives	859	6	3	9	698	349	1,048
No children	257	...	...	...	...	...	...
All children under ½ yr.	3	...	...	...	...	...	...
Children ½-3 yr.	469	5	3	8	1,222	733	1,956
All children over 3 yr.	130	1	...	1	526	...	526
Totals	15,520	12	12	24	77	77	155

Factorial Analysis

Factor	Population	Cases	Rate per 100,000	SL‡
Children ½-3 yr. in family				
Military husbands				
With children ½-3 yr.	3,003	8	266	
Without children ½-3 yr.	4,757	2	42	0.01
Nonpregnant dependent wives				
With children ½-3 yr.	2,594	5	193	
Without children ½-3 yr.	4,307	...	...	0.01
Pregnant dependent wives				
With children ½-3 yr.	469	8	1,956	
Without children ½-3 yr.	450	1	222	0.02
Pregnancy (in dependent wives with children ½-3 yr.)				
Pregnant wives	469	8	1,956	
Nonpregnant wives	2,594	5	193	0.001
Sex (in parents with children ½-3 yr.)				
Military husbands	3,003	8	266	
Nonpregnant wives	2,594	5	193	NS§

* Single personnel and dependent children excluded.
† P, paralytic; NP, nonparalytic; T, total.
‡ SL, significance level.
§ NS, not significantly different at 0.05 level.

Prophylaxis Programs

Gamma Globulin.—By Sept. 15, a total of nine cases among Navy personnel and dependents had been reported. Of these nine cases, four had occurred during September among residents of Navy housing area 1. At this time, an urgent request for gamma globulin was made because of fear of an impending epidemic in this housing area. By Sept. 25, when the gamma globulin prophylaxis program was started, five additional cases had occurred among residents of the area. Between Sept. 25 and 28, a total of 1,518 of the 1,830 adults and children in the area were given gamma globulin (0.2 cc. per pound of body weight, with a maximum dose of 30 cc.). Subsequently, two cases occurred among recipients of gamma globulin, one nonparalytic case in a patient who developed symptoms three days after receiving gamma globulin, and one paralytic case in a patient who on hospitalization gave a history of mild symptoms occurring three days prior to receiving gamma globulin.

Vaccination.—By the end of September, there was serious concern that the outbreak of poliomyelitis, concentrated mainly in Navy housing area 1, might spread with equal severity to the 4,120 families in adjacent Navy housing areas. On the recommendation of the preventive medicine officer, an emergency request for poliomyelitis vaccine was made to the surgeon general, U. S. Navy, on Sept. 27, 1955. In response to this request, a special allotment of the supply of vaccine allocated to the Navy under the federal interstate distribution plan was provided for use in Hawaii. This allotment was supplemented by a supply of vaccine originally designated for first and second-grade school clinics but found to be in excess of demand, which was made available through the cooperation of the Territory of Hawaii Board of Health and the National Foundation for Infantile Paralysis.

With special effort directed to stimulation of maximum voluntary participation, the emergency poliomyelitis vaccination program for all married personnel and dependents was started on Oct. 5, 1955. In notices, information bulletins, and at a press conference, the important features of the Navy vaccination program were outlined. Special emphasis was put on the fact that the program was being started at a critical time, when new cases were becoming more frequent. At the time of vaccination, a record was prepared for each vaccinee. The following data were recorded: name, age, family status, address, lot number of the vaccine used, the arm inoculated, and the date of vaccination. Those who reported symptoms of minor illness, especially fever, sore throat, or gastrointestinal upset, or who gave a history of contact with a patient with poliomyelitis were not vaccinated but advised to return later for vaccination. During the first 15 days of the

program, approximately two-thirds of the estimated 27,160 married personnel and dependents received a first intramuscular inoculation of 1 cc. of poliomyelitis vaccine, and by Nov. 18, 1955, 45 days after start of vaccination, about 80% of the married personnel and their dependents had received first inoculations (fig.

TABLE 4.—*Estimated Person-Days of Risk by Fifteen-Day Periods**

15-Day Period Ending	Married Personnel and Dependent Wives		Dependent Children		Total Group	
	NV†	V	NV	V	NV	V
10/19/55	123,218	91,208	75,114	87,651	198,332	178,759
11/ 3	70,577	140,119	29,886	128,104	100,463	268,223
11/18	53,915	132,551	18,069	136,751	71,984	269,302
12/ 3	49,875	132,361	15,282	130,303	65,157	262,724
12/18	48,840	149,166	14,964	133,505	63,804	282,671
1/ 2/56	47,770	145,969	14,653	130,647	62,423	276,616
30-day period ending 11/ 3/55	193,795	231,827	105,000	215,155	298,795	446,982
90-day period ending 1/ 2/56	394,195	851,874	167,968	752,421	562,163	1,584,295

* Single personnel excluded.
† NV, not vaccinated; V, vaccinated. Data refer to first inoculations only. In period Oct. 26 through Dec. 3, most vaccinees received a second inoculation, so that majority of vaccinated individuals in study from Dec. 4 through Jan. 2 had received two inoculations.

4). Second inoculations were started on Oct. 26, 1955, and, by Dec. 3, over three-fourths of the vaccinated group had received a second inoculation.

Poliomyelitis surveillance forms were completed on vaccinated patients who developed poliomyelitis. Blood and stool specimens were collected from a number of these patients and their contacts and forwarded to the virus and rickettsia laboratory, California State Health Department. This laboratory reported that type 1 poliomyelitis virus was isolated in tissue culture of the stool specimens of five patients and four contacts.

The vaccination program was limited to married Navy personnel and their dependents. Single Navy personnel were not included, because, as mentioned above, an analysis of the epidemic of 1953-1954 had shown that 41 of 45 cases in adults occurred in married personnel and wives. This decision was justified by the 1955-1956 experience, when 29 cases occurred in adults of whom 24 were married personnel and wives. The five cases among single personnel (all unvaccinated) and the population from which they are drawn are not considered in the remainder of this report, which is devoted to a description and analysis of the vaccination program.

Careful tabulations were made to follow the vaccination program throughout the 90-day study period from Oct. 5, 1955, through Jan. 2, 1956. The study group included all married Navy personnel and dependents resident on Oct. 5, 1955, with the exception of the population of Navy housing area 1, most of whom had received gamma globulin. Also excluded were 201 children inoculated prior to Oct. 5, 1955. The study population was divided into adults and children, and the computations described below were carried out separately on these two subgroups. The total number of Navy personnel on active duty and their dependents resident in Hawaii during the period of the epidemic was available. Housing-office records indicated that an average Navy family had 1.5 children. Using this factor, it was possible to calculate the population of married adults and children resident at the beginning of the vaccination program. This factor was later verified by an accurate census of a representative housing area. The total population was then corrected by subtraction of the population of Navy housing area 1 and adjusted for attrition due to departures. In this way, the study population was estimated for each day from Oct. 5, 1955, through Jan. 2, 1956.

From the vaccination record cards, cumulative numbers of first inoculations were tabulated by individual days, and all nonvaccinees were transferred to the vaccinated group on the day of first inoculation. The following adjustments were then made: 1. Residents of Navy housing area 1 were subtracted, according to date of first inoculation. 2. New arrivals taking up residence after Oct. 5, 1955, were excluded. 3. A correction was made for attrition of the vaccinated population. These adjusted data gave the total number of vaccinees at risk for each day of the study. The unvaccinated population was then calculated on a daily basis by subtraction of vaccinees from the total population. For both vaccinated and nonvaccinated populations, daily totals were grouped to show the number of person-days of risk during successive 15-day periods, beginning Oct. 5, the first day of the vaccination program. These data appear in table 4. This table also shows person-days of risk for the first

TABLE 5.—*Poliomyelitis Among Vaccinated and Nonvaccinated Persons by Fifteen-Day Periods**

15-Day Period Ending	Married Personnel and Wives				Dependent Children				Total
	P†		NP		P		NP		
	V	NV	V	NV	V	NV	V	NV	
8/ 5/55	...	...	...	1	...	...	...	...	1
8/20	...	...	...	...	...	...	...	...	...
9/ 4	...	2	...	...	...	2	...	...	4
9/19	...	2	...	2	...	2	...	...	6
10/ 4	...	1	...	5	...	2	...	1	7
Subtotal	...	5	...	6	...	6	...	1	18
	(Vaccination program started 8/5/55)								
10/19	1‡	2	...	1	4	1	1	2	12
11/ 3	1	...	2§	...	...(1)	1	3	1	8(1)
11/18	...	...	...	...(1)	...	...	...	...	...(1)
12/ 3	...	...	...	...	1§	...	1	...	2
12/18	...	1	...	...	...	...	...	...	1
1/ 2/56	...	...(1)	...	...	...	...	...	...	...(1)
Subtotal	2	3(1)	2	1(1)	5(1)	2	5	3	23(3)
	(Vaccination program ended 1/2/56)¶								
1/17	...	...	...	...	...	...	...	...	...
2/ 1	...	1	1§	1	...	...	...	...	3
2/16	...	...	...	...	...	...	...	...	...
3/ 2	...	...	...	...	1§	...	...	...	1
Subtotal	...	1	1	1	1	...	...	...	4
Total	2	10	3	9	7	8	5	4	48

* Cases among single personnel excluded.
† P, paralytic; NP, nonparalytic; V, vaccinated; NV, not vaccinated.
‡ Vaccinated one day after onset of symptoms.
§ Includes one patient receiving two inoculations; all other vaccinated patients received a single inoculation.
‖ Patients with onset of illness Oct. 5 through Jan. 2 who were excluded from the study because they arrived in Hawaii after Oct. 5 are noted in parentheses.
¶ After Nov. 18 essentially all first vaccinations were given to new residents who had arrived after Oct. 5.

30 days of the study period and for the whole study period. These totals are used to calculate some of the attack rates discussed below.

Evaluation of Effectiveness

Table 5 presents cases of poliomyelitis among vaccinated and unvaccinated adults and children by paralytic status and date of onset. As mentioned above, the five cases among single personnel are excluded.

This leaves a group of 48 cases, of which 18 had onset prior to Oct. 5, 4 had onset after Jan. 2, and 26 had onset during the study period (Oct. 5 through Jan. 2). Of the 26 patients, 3 are excluded because they arrived in Hawaii after Oct. 5. The remaining group of 23 patients (indicated by solid circles in figure 2) corresponds to the study population described in the previous section. Evaluation of the vaccine is based on study of these 23 patients, of whom 9 were unvaccinated and 14 vaccinated. Of the 14 vaccinated patients, 2 had received two inoculations prior to onset, 11 had received one inoculation prior to onset, and one had received a single inoculation one day after onset of mild prodromal symptoms.

Table 6 presents an evaluation of vaccine effectiveness. This table considers the 23 cases defined above, and rates are calculated on the total number of vaccinated and unvaccinated person-days of risk for the 90-day study period. With the exception of nonparalytic cases among adults, rates among vaccinees are consistently lower than rates among nonvaccinees. However, none of these differences are statistically significant. As noted above, estimates of vaccine effectiveness have appeared in previous reports.[1]

TABLE 6.—*Evaluation of Vaccine Effectiveness by Age Group and Paralytic Status**

	Married Personnel and Wives			Dependent Children			Total Group		
	Person-Days†	Cases‡	Rates§	Person-Days	Cases	Rates	Person-Days	Cases	Rates
Paralytic									
Vaccinated	831,874	2	0.24	752,421	5	0.66	1,584,295	7	0.44
Not vaccinated	394,195	3	0.76	167,908	2	1.19	562,103	5	0.89
Nonparalytic									
Vaccinated	831,874	2	0.24	752,421	5	0.66	1,584,295	7	0.44
Not vaccinated	394,195	1	0.25	167,908	3	1.79	562,103	4	0.71
Totals									
Vaccinated	831,874	4	0.48	752,421	10	1.33	1,584,295	14	0.88
Not vaccinated	394,195	4	1.01	167,908	5	2.98	562,103	9	1.60

* Single personnel excluded.
† Total person-days of risk for 90-day period from Oct. 5, 1955, through Jan. 2, 1956.
‡ Limited to patients among the resident population on Oct. 5 and whose disease started in the period Oct. 5, 1955, through Jan. 2, 1956.
§ Rates per 100,000 person-days of risk.

Of the 14 patients in the study group who had been vaccinated, 13 had onset of their disease within 30 days of first vaccination, 7 had onset within 14 days of first vaccination, and one later reported the occurrence of mild symptoms one day before first vaccination. In addition, of these 14 vaccinated patients, 12 had received only one inoculation prior to onset. From the clinical data available, a comparison of the severity of cases in vaccinated and nonvaccinated persons can be made. Of the total group of 17 vaccinated persons, 9 had paralytic diseases, and, of these 9, only 2 (22%) required a tracheotomy and respiratory aid. One of these two patients had been vaccinated only one day before onset. By contrast, of the total group of 36 unvaccinated patients, 21 had paralytic disease, and, of these 21, 8 (38%) required respiratory aid and a tracheotomy.

Evaluation of the Provoking Effect

It has already been noted that the severe outbreak of poliomyelitis in Navy housing area 1 ended just prior to the initiation of the vaccination program. If the 11 cases from this area and the 5 cases among single personnel (not eligible for vaccination) are excluded, a group of 37 cases remains. In figure 4, these cases are presented by date of onset. This figure shows that the incidence of poliomyelitis was rising rapidly

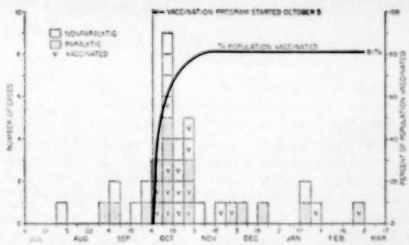

Fig. 4—Poliomyelitis among married Navy personnel and dependents in relation to vaccination program. Navy housing area 1 is excluded.

in this segment of the population during the 15-day period from Oct. 5 through Oct. 19, when almost 75% of this group received a first inoculation. Thus, the circumstances in which the vaccine was used were particularly favorable for the demonstration of a provoking effect. Since a provoking effect should be most marked shortly after vaccination, a comparison is made of cases occurring in vaccinated and unvaccinated persons during the first 30 days of the program. During this period there were 13 cases (7 paralytic and 6 nonparalytic) among vaccinees and 8 cases (4 paralytic and 4 nonparalytic) among nonvaccinated individuals. This similarity in the percentage of paralytic cases among vaccinated and unvaccinated groups does not suggest a provoking effect.

A comparison of case rates in vaccinated and nonvaccinated persons can also be made for this 30-day period (table 7), with the number of person-days of risk taken from table 4 and the cases from table 5. In the calculation of these rates, only 12 of the 13 cases in vaccinees are considered, since one vaccinated patient was not in residence on Oct. 5 and was therefore excluded from the study population. No difference between attack rates for vaccinated and unvaccinated individuals was observed. These data suggest that vaccinees did not show any increased susceptibility to clinical poliomyelitis in the first 30 days after initiation of the vaccination program. Another approach to the search for a provoking effect can be made through an analysis of the family rosters that were completed on all patients with poliomyelitis as part of the epidemiological investigation of the outbreak. The 48 cases occurring among married Navy personnel and dependents involved 46 families (2 double-case families and 44 single-case families). There were among these 46 families a total of 135 adults and children who were contacts of an index patient. Of these 135 contacts, 51

TABLE 7.—*Case Rates During First Thirty Days of Program*

Vaccination Status	Person-Days	Cases	Rate
Vaccinated	446,982	12	2.68
Not vaccinated	298,705	8	2.68

were vaccinated and 84 unvaccinated. Since the majority of vaccinated contacts had received a first inoculation within 30 days of exposure to the index patient, a provoking effect, if present, would have resulted in a higher paralytic attack rate among vaccinated than among unvaccinated contacts. Observed attack rates were similar in the two groups, since one paralytic case occurred among the 84 unvaccinated contacts and one nonparalytic case among the 51 vaccinated contacts.

Although the above epidemiological analysis does not suggest a provoking effect, it is important to look at the clinical character of the total group of cases in vaccinated persons. This is done in tables 8 and 9. In table 8, the vaccinated patients are presented according to paralytic status and interval from inoculation to first symptoms. Of the 17 vaccinated patients, 9 (53%) had paralytic disease. By comparison, of the 36 nonvaccinated patients, 21 (58%) had paralytic disease. Again, there is no evidence that injections of poliomyelitis vaccine provoked paralysis. Of the nine paralytic cases in vaccinees, one was bulbar, one was bulbospinal, and seven were spinal. Of the eight patients with spinal lesions, five showed involvement of legs only, two developed quadriplegia, and one (bulbospinal) was first noted during convalescence to have minimal involvement of the uninoculated arm. This distribution is similar to the distribution of paralysis among patients with naturally occurring poliomyelitis. In particular, there is no preponderance of patients with arm involvement. This is of importance, since all vaccinees were inoculated in the arm, and a provoking effect, if present, would have increased the frequency of arm involvement. Table 8 also shows the intervals from inoculation to first symptoms for the 17 vaccinated patients. When one case where there was history of onset before inoculation and 2 cases where there

TABLE 8.—*Cases Among Vaccinees by Paralytic Status and Interval from Inoculation to First Symptoms*

		Interval in Days from Inoculation to First Symptoms						Total	
		-1	0-7	8-14	15-21	22-28	29+	No.	%
Poliomyelitis									
Paralytic								9	53
Spinal									
Arm(s) only									
Leg(s) only		1†	2	1			1§	5	
Quadriplegia			1‡			1		2	
Bulbospinal*				1§				1	
Bulbar				1				1	
Nonparalytic			1	1	3§	2	1§	8	47
Totals	No.	1	4	4	3	3	2	17	
	%	6	23	23	18	18	12		100

* Includes one patient who was inoculated twice in the right arm, with first and major involvement bulbar and slight weakness found in left arm on examination six weeks after onset.
† After hospitalization this patient admitted having symptoms one day prior to vaccination.
‡ Fatal case.
§ Includes one patient who received two inoculations. For patients inoculated twice, the interval is taken as the number of days between onset and the last inoculation prior to onset.

was an interval of over 30 days are eliminated, 14 cases with intervals of 0 to 28 days remain. When these cases are grouped by seven-day periods, it is seen that in successive periods there were four, four, three, and three cases, respectively, giving no suggestion of a provoking effect.

In table 9, the nine paralytic cases in vaccinees are reviewed in detail by interval from inoculation to onset of paralysis and relationship between site of inoculation and site of first paralysis. In this table, information from two other sources is presented for comparison.

TABLE 9.—*Paralytic Poliomyelitis in Vaccinated Navy Personnel and Dependents Compared with Inoculation Poliomyelitis in Man and with Provoked Poliomyelitis in the Monkey*

Interval Between Inoculation and Onset of Paralysis

Interval from Inoculation to First Paralysis, Days	Present Investigation (9 Cases), %	Inoculation* Poliomyelitis (61 Cases), %	Provoked† Poliomyelitis (253 Cases), %
0-3	22	...	...
4-7	12	20	24
8-14	22	67	72
15-21	22‡	8	3
22 or more	22‡	5	1

Relationship Between Site of Inoculation and Site of First Paralysis

Site of First Paralysis	Present Investigation (9 Cases), %	Inoculation Poliomyelitis (59 Cases), %	Provoked Poliomyelitis (248 Cases), %
In inoculated extremity	...	68	74
Distant from Site of inoculation	100	32	26

* Data from Langmuir and co-workers.[1b] Two cases in which site of inoculation was not known are excluded from lower section of table.
† Data from Bodian.[3] Fifteen cases in which exact date of first paralysis was not known are excluded from upper section of table.
‡ Includes one patient inoculated twice and classified by interval from second inoculation to onset of paralysis.

Data on inoculation poliomyelitis in man are taken from a report by Langmuir and co-workers[1b] on 61 cases of paralytic poliomyelitis occurring among individuals inoculated with residual viable virus in poliomyelitis vaccine prepared by Cutter Laboratories. Data on provoked poliomyelitis are taken from a report by Bodian[3] on 248 Cynomolgus monkeys given 100 to 1,000 $TCID_{50}$ of virulent Mahoney virus by the intracardiac route, with provocation induced by introduction of a needle into the right calf, with or without inoculation of various irritating materials. In both inoculation polyiomyelitis and provoked poliomyelitis, the majority of resulting paralytic cases developed with first paralysis in the inoculated extremity at an interval of 4 to 14 days after inoculation. Of the nine vaccinated Navy personnel and their dependents with paralytic cases, only three had onset of paralysis 4 to 14 days after inoculation, and none developed initial paralysis in the inoculated extremity. In neither respect is there any suggestion of a resemblance to inoculation poliomyelitis or provoked poliomyelitis.

Evaluation of the provoking effect is completed by an analysis of the relationship between the site of inoculation and extent of final paralysis. Of the nine vaccinated patients who developed paralytic disease, eight were inoculated within 30 days of onset. During the illness of these eight patients, paralytic poliomyelitis developed in two of the eight inoculated arms and in three of the eight uninoculated arms. Thus, prior inoculation of an extremity did not increase the frequency of paralytic involvement of that extremity. This finding is in sharp contrast to studies of the provoking effect of certain other immunizing injections.[2]

Summary and Conclusions

As the result of epidemiological observations on outbreaks of poliomyelitis occurring between 1953 and

1956 among Navy personnel and dependents in Hawaii and of experience with a voluntary mass vaccination program started during the 1955 epidemic, certain tentative conclusions can be drawn: 1. Military and civilian nurseries are important in the spread of poliomyelitis infections among Navy infants and children of preschool age, who subsequently may infect their parents, older children, and other adults. 2. Among the total group of adults, attack rates were significantly higher in parents of children aged 6 months to 3 years than in single personnel or in married adults without children in this age group. On review of a previous epidemic among Navy personnel and dependents in Hawaii, similar observations were made. Among dependent wives with children aged 6 months to 3 years, rates were significantly higher in pregnant than in nonpregnant women, while no significant difference was observed between rates in husbands and nonpregnant wives. 3. After the mass vaccination program, attack rates were lower in vaccinees than in the unvaccinated population, although this difference was not statistically significant. 4. Epidemiological and clinical data did not reveal any evidence of a provoking effect due to injections of poliomyelitis vaccine. 5. Further studies on the use of poliomyelitis vaccine under epidemic conditions will be necessary if the tentative conclusions of this study are to be firmly established.

U. S. Navy Preventive Medicine Unit No. 6, Navy No. 128, c/o Fleet Post Office, San Francisco (Captain Poos).

The opinions and assertions expressed herein are those of the authors and are not to be construed as representing the views of the Navy Department or the naval service at large.

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NEWER DRUGS IN THE TREATMENT OF HYPERTENSION

EXPERIENCE WITH RAUWOLFIA DRUGS AND PROTOVERATRINE

James E. Gibbons, M.D., John C. Muller, M.D., William W. Pryor, M.D.
and
Edward S. Orgain, M.D., Durham, N.C.

• The effects of certain preparations of Rauwolfia were studied in 58 patients who had hypertension in various degrees of severity. The doses, initially small, were gradually increased until a fall of blood pressure or unpleasant symptoms occurred and were reduced when troublesome side-effects appeared. In the 58 patients so treated, the group fall in mean blood pressure amounted to 12 and 15 mm. Hg for the recumbent and the standing positions respectively. Minor side-effects were observed in 48 and severe mental illness in 4 of the patients. In 19 patients the addition of a Veratrum preparation to the therapy caused further reductions of only 2 and 3 mm. Hg for recumbent and standing blood pressures, although the dosage was large enough to cause alarming symptoms in two. In seven patients who received Veratrum preparations alone, no consistent hypotensive response was obtained. The need of watchfulness and of individual adjustment of dosages was clearly demonstrated.

New drugs, utilized alone or in various combinations, are currently employed with increasing enthusiasm in the treatment of hypertensive vascular disease. The most useful drug or the most effective combination for all hypertensive patients remains unsettled, due principally to lack of satisfactory hypotensive effect or to disagreeable and even hazardous reactions from the drugs. It therefore seemed worthwhile, in one of a series of studies on hypotensive agents, to investigate the efficacy of several Rauwolfia drugs and protoveratrine when administered alone and in combination.

The mild hypotensive effect of Rauwolfia serpentina, first described by Indian workers in 1931, is attributed to peripheral vasodilatation from central inhibition of the sympathetic nervous system and possibly a direct action on the vessel wall.[1] Introduced into this country by Wilkins[2] in 1952, preparations now available include the crude root of Rauwolfia serpentina, a semipurified alseroxylon fraction, and the pure alkaloid, reserpine. Several reports attest to their hypotensive action and their principal usefulness in mild hypertensive vascular disease.[3] The simplicity of oral administration and the desirable tranquilizing effects have led to their widespread acceptance by the medical profession. The production of serious mental illness has only recently been stressed.[4]

From the Department of Medicine, Duke University School of Medicine, and the Cardiovascular Service, Duke Hospital.

Several biologically standardized preparations of Veratrum viride and Veratrum album are available, including the pure alkaloids, protoveratrines A and B. These compounds, presumed to act by reflex parasympathetic stimulation,[3] have been recommended particularly to enhance the hypotensive effects of Rauwolfia drugs and hydralazine.[4] It is the purpose of this paper to report our experience in the treatment of 58 patients with hypertensive vascular disease treated with Rauwolfia compounds and protoveratrine, alone and in combination.

Material and Methods

Previous publications from this hospital[5] have outlined methods of study and follow-up of hypertensive patients. The present series of 58 patients comprises 33 males and 25 females, ranging in age from 22 to 78 years (average 47.7 years), treated with Rauwolfia compounds for periods of from 3 to 14 months (average 6 months). The group average pretreatment blood pressure was 188/112 mm. Hg (mean 137) recumbent, and 175/111 mm. Hg (mean 132) standing. (Mean blood pressure is here defined as the number obtained by adding one-third of the difference between diastolic and systolic pressure to the diastolic pressure.) As outlined by Page[6] and Goodyer,[7] the patients' conditions were graded according to a "severity index" based on the following data: level and duration of blood pressure, changes in the fundi, renal function, and evidences of cerebral vascular disease, cardiac enlargement, heart failure, or coronary disease. Graded in this manner, conditions of 19 patients were classified as grade 1 (mild), of 37 patients grade 2 (moderate), of one patient grade 3 (severe), and of one patient grade 4 (malignant).

Rauwolfia compounds were administered orally two to four times daily in divided doses. Doses used were initially small, then gradually increased until a fall in blood pressure or unpleasant symptoms occurred, and reduced when troublesome side-effects appeared. The final ranges and average daily doses were reserpine (Serpasil), 0.5 to 4.0 mg. (average 1.5 mg.); reserpine (Serpine), 0.6 to 2.4 mg. (average 1.4 mg.); and Rauwolfia (Raudixin), 200 to 750 mg. (average 400 mg.). Both hypotensive reactions and side-effects of the three drugs were approximately comparable.

Protoveratrines A and B (Veralba) or protoveratrine A and B maleates (Provell maleate) were administered in divided doses, beginning with 0.25 mg. three times daily after meals and increasing to 0.75 mg. three times daily; rarely could patients tolerate more than 1 mg. as a single dose, and few could tolerate more than 0.5 mg. given three to four times daily. Maximum tolerated doses were given for periods of from 2 to 10 months (average 4.8 months). In 19 of these 58 patients, protoveratrine was also used after a variable period of Rauwolfia therapy alone. The average recumbent blood pressure for the 19 patients before the addition to therapy of protoveratrine was 197/104 mm. Hg (mean 134).

Results

For the group of 58 patients treated with Rauwolfia compounds alone, the average blood pressure after treatment was 173/101 mm. Hg recumbent (mean 125) and 155/98 mm. Hg standing (mean 117). This group fall in mean blood pressure of 12 mm. Hg recumbent and 13 mm. Hg standing does not reflect accurately the effectiveness of these drugs. In table 1 the patients are grouped on the basis of the pretreatment mean recumbent blood pressure, and here the magnitude of fall in mean recumbent blood pressure for each group is indicated as well as the number of patients whose blood pressures fell to "normal." (Normal is here defined as a mean recumbent blood pressure of 115 mm. Hg or less.) The tabulated data reveal reduction of blood pressure to normal levels in 19 of the 58 patients (33%). Considering only the patients with moderate and severe conditions (groups 2 and 3), 13 of 34 patients (38%) had "definite" blood pressure responses. (A definite response is here arbitrarily defined as a fall in mean recumbent blood pressure of more than 20 mm. Hg.) This result is in agreement with the recent review by Goodyer,[7] who noted that hypotensive effects were observed in 39% of 218 patients treated by five different groups. The "severity index" gradings were altered by the blood pressure responses in that,

TABLE 1.—*Effect of Rauwolfia Therapy on Blood Pressure*

Fall in Mean Blood Pressure,* Mm. Hg	Group 1—24 Patients with Blood Pressures of 130-135 Mm. Hg†	Group 2—27 Patients with Blood Pressures of 136-150 Mm. Hg.	Group 3—7 Patients with Blood Pressures Above 150 Mm. Hg.
0–9	16‡	11‡	1‡
10-19	5	7	2
20-29	2	4	
30-39	1	3	3
40+		2	1
Fall to normal blood pressure§	9(40%)	8(30%)	2(30%)

* Mean blood pressure is here defined as the number obtained by adding one-third of the difference between diastolic and systolic pressure to the diastolic pressure.
† Pretreatment mean recumbent blood pressure range.
‡ These figures refer to actual number of patients.
§ Normal is here defined as a mean recumbent blood pressure of 115 mm. Hg or less.

in 17 of 37 patients, grade 2 (moderate) conditions became grade 1 (mild) conditions, and, in the single patient with a grade 4 (hypertensive) condition, the illness became grade 3. During the period of observation reported, no changes were observed in the major clinical manifestations of hypertensive vascular disease, i. e., coronary disease, cardiac enlargement, and renal disease. Minor fluctuations in the electrocardiographic tracings and observations of the ocular fundi seemed insignificant and did not further alter the severity index gradings. Our results indicate Rauwolfia compounds to be useful in the more severe forms of hypertension as well as in the mild, labile group.

As reported by others, side-effects from Rauwolfia drugs are common and include nasal stuffiness, weight gain, drowsiness, fatigue, loss of initiative, dreams, nightmares, jitteriness, and occasionally mild diarrhea. Such minor symptoms were observed in 82% of patients but were usually controlled by reduction of dosage. However, four patients (6.9%) from the present group, reported in detail elsewhere,[4] developed severe mental illnesses characterized by anxiety, agitation, and depression. These cases emphasize the importance of large daily doses administered for prolonged periods as well as a history of previous psychiatric illness as probable etiological factors.

In the 19 patients whose responses in blood pressure were studied after the addition to therapy of protoveratrine, a further group fall in mean blood pressure of only 2 mm. Hg recumbent and 3 mm. Hg standing was found. From table 2 it may be seen that only three patients (15.8%) exhibited a definite response in blood pressure, and in two of these the blood pressure fell to normal values. Protoveratrine in doses greater than 1.5 mg. commonly induced nausea, gastric distress, and vomiting.

Additional data are available on seven patients (three females and four males) who received maximum-tolerated doses of protoveratrine alone for periods of from one to six months (average 3.4 months). The group average pretreatment blood pressure was 190/110 mm. Hg (mean 136). None of these patients (four with conditions classified as grade 1, one with a grade 2 condition, and two with grade 3 conditions) had a definite consistent hypotensive response. In three patients, two receiving the combination and one receiving protoveratrine alone, alarming but transient shock-like episodes were seen with bradycardia, sweating, vomiting, and collapse.

TABLE 2.—*Effect of Therapy with Rauwolfia and Protoveratrine on Blood Pressure*

Fall in Mean Recumbent blood pressure,* Mm. Hg.	19 Patients with Av. Blood Pressure of 192/107 (Mean 134 Mm. Hg) Prior to Addition of Protoveratrine
0–9	13†
10–19	1
20–29	3
30+	0
Fall to normal blood pressure‡	2 (10.5%)

* Mean blood pressure is here defined as the number obtained by adding one-third of the difference between diastolic and systolic pressure to the diastolic pressure.

† Number of patients.

‡ Normal is here defined as a mean recumbent blood pressure of 115 mm. Hg or less.

Comment

Rauwolfia drugs have an important place in the treatment of hypertensive vascular disease. Adequate blood pressure control with these agents alone can be achieved in about 40% of patients with mild and moderate hypertension. In moderately severe and severe hypertensive vascular disease a "definite" lowering of blood pressure may be anticipated in about 30% of patients. Protoveratrine proved unsatisfactory as a hypotensive agent alone in a small group tested and failed to provide significant additive hypotensive action when utilized to supplement Rauwolfia compounds in a larger series of patients. Other authors, Wilkins,[8] Meilman,[10] and Hoobler,[11] are more impressed with the usefulness of protoveratrine as a hypotensive agent. The preliminary use of Rauwolfia drugs did not reduce appreciably the frequency or severity of side-effects from protoveratrine. Side-effects from use of Rauwolfia drugs are rarely troublesome enough to warrant complete withdrawal of the drug, as they usually diminish with reduction in dosage. The maximum daily dose probably should not exceed 1.5 mg. of reserpine, and, when bradycardia, excessive nasal stuffiness, or dowsiness appears, this dose should be reduced to the minimum amount necessary to maintain the hypotensive effect. This often will be 0.25 mg. per day or less. Apathy, fatigue, and anxiety or depressive symptoms may herald the development of a severe and protracted psychotic illness, which is unresponsive to withdrawal of the drug and resistant to psychiatric treatment.

Summary

In 58 patients with hypertensive vascular disease treated with Rauwolfia drugs, a "normal" blood pressure level was achieved in 33%. Of the patients with moderate (group 2) and severe (group 3) conditions whose mean recumbent pressures were greater than 136 mm. Hg, "definite" blood pressure responses were observed in 38% and blood pressure levels fell to "normal" in 29%. Further reduction in blood pressure level was noted in only 15% after the addition of protoveratrine to therapy, and this drug was not considered to have practical value when used alone. Dosage of Rauwolfia drugs should be carefully regulated, and patients receiving them should be carefully watched.

The reserpine used in this study was supplied as Serpasil by Ciba Pharmaceutical Products, Inc., Summit, N. J., and as Serpine by Pitman-Moore Company, Indianapolis; the Rauwolfia used was supplied as Raudixin by E. R. Squibb & Sons, New York, and the protoveratrine as Provell malcate by Eli Lilly & Company, Indianapolis, and as Veralba by Pitman-Moore Company.

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Peptic Ulcer.—It has been definitely established that caffeine (in coffee and tea) stimulates the secretion of gastric juice particularly in ulcer patients. Alcohol, also, is a gastric secretory stimulant and has been used as a test meal for years. As to smoking, Hartiala reported that nicotine given subcutaneously to dogs with duodenal pouches reduced the output of secretion from these pouches by 50 per cent; by inference, this deprives the duodenal contents of a significant amount of alkaline secretion to neutralize the oncoming acid gastric juice. Clinically, Batterman and Ehrenfeld compared the results in 56 ulcer patients who were smokers with the results in 39 nonsmokers. They concluded that tobacco smoking is detrimental to the welfare of the ulcer patient. Not only will response to antacid therapy be inadequate, but the likelihood of severe exacerbations is approximately three to four times that in nonsmokers or patients who have ceased smoking. If the patient cannot give up smoking completely, they recommend the use of denicotinized tobacco. In refractory patients, it is possible by the use of such tobacco to increase the responsiveness to antacids and decrease the incidence of exacerbations; however, the results are superior if the patients stop smoking entirely.—D. J. Sandweiss, M.D., and F. P. Brooks, M.D., Sc.D., Recent Advances in the Medical Treatment of Peptic Ulcer, *The Medical Clinics of North America*, March, 1956.

PATHOGENESIS OF EOSINOPHILIC PNEUMONITIS (LÖFFLER'S SYNDROME)

William L. Epstein, M.D.
and
Albert M. Kligman, M.D., Ph.D., Philadelphia

• *Eosinophil counts up to a maximum of 80 per 100 white blood cells were obtained in seven patients hospitalized for pneumonitis with findings characteristic of Löffler's syndrome, namely, a patchy, migratory infiltration seen in serial roentgenograms. Each patient had received from two to six graded injections of 3-pentadecylcatechol in sesame oil for prophylaxis against poison ivy dermatitis. The symptoms of cough, dyspnea, malaise, and fever set in 8 to 48 hours after the last injection. Sharp chest pains, the production of sputum, occasional rales, and sometimes an inflamed pharynx were among the findings. The only consistent features were the eosinophilia and the pneumonitis. The latter cleared completely in 4 to 15 days.*

The phenomena in the lungs may be explained by assuming the existence of a mechanism there for trapping eosinophils. The varying degrees of eosinophilia seen in allergic and parasitic diseases would account for mild, abortive forms of pneumonitis as well as for pulmonary infiltrations massive and dense enough to be revealed by roentgen ray.

The diagnostic criteria of eosinophilic pneumonitis (Löffler's syndrome) are rigid. A patient with a self-involuting respiratory disease presents eosinophilia and fleeting, migratory pulmonary infiltrates in serial chest films.[1] A variety of disturbances have been linked to its development. Most are presumed to belong to an allergic category, for example, drug reactions, atopy, or intestinal parasitism. Our present aim is to present some notions on the pathogenesis of this syndrome, drawing upon experiences encountered in studies of the prophylaxis of poison ivy dermatitis.

We have given over a thousand subjects hyposensitizing injections of 3-pentadecylcatechol, a synthetic chemical that is one of the allergens in poison ivy and related plants. Eosinophilic pneumonitis developed in seven of these patients after they had received anywhere from two to six graded intramuscular injections (0.4-2.0 ml.) of 10% solution of 3-pentadecylcatechol in sesame oil. In every case the last dose doubled or nearly doubled the total previously given. Three of the seven had had previous local reactions at the site of injection, such as erythema, edema, pain, or pruritus (these are common when too large a dose of 3-pentadecylcatechol is given before adequate hyposensitization has occurred). The pulmonary symptoms characteristically had a fairly sudden onset 8 to 48 hours after the last injection. There generally was cough, shortness of breath, malaise, and feverishness. Four patients had sharp chest pain that was not pleuritic in nature. Two patients produced measurable amounts of sputum, and eosinophils were found on the sputum of one of these. All the patients were hospitalized, where the only important findings were fever, occasional rales, and sometimes an inflamed pharynx. One patient had a small pleural effusion. There were no significant laboratory findings except for a leukocytosis and eosinophilia of variable degree (see table). The eosinophilia frequently reached a peak after the x-ray and physical changes began to recede. The chest x-rays showed variable degrees of patchy pneumonitis that completely cleared in 4 to 15 days. These patients enjoyed an uneventful and frequently asymptomatic hospital stay and were discharged in good health.

Comment

The means by which the pulmonary infiltrates are formed is the most puzzling aspect of the pathogenesis of eosinophilic pneumonitis. The eosinophilia would seem to play a central role in the drama, but in just what way is a difficult question to answer so long as the function and fate of the eosinophil remains unknown. First, let us inspect the relationship of eosinophilia to an allergic stimulus. Samter and co-workers [2] have clearly demonstrated by injecting anaphylactically shocked and unshocked lung intraperitoneally into guinea pigs that eosinophil production is stimulated by the products of antigen-antibody combination rather than by antigen or antibody alone. This, of course, correlates with clinical experience, for eosinophilia often reflects allergic reactions, and the discovery of eosinophilia invariably starts in motion an inquiry into possible allergic phenomena. However, the assumption that allergy is lurking in the background of every eosinophilia is obviously too glib and, indeed, false, for there may be entirely unrelated causes for it. Concerning eosinophilic pneumonitis, allergy is neither a sufficient nor an absolute requirement, for not everyone with eosinophilia develops this disorder, and it may exist in the complete absence of the allergic state. Firsthand evidence of this is given by Löffler himself.[3] He reproduced the syndrome in a susceptible patient by daily injections of large amounts of vegetable oils and gives adequate evidence that the oils were directly eosinophilogenic without being allergenic.

Leukocyte and Eosinophil Change† in Relation to X-Ray Findings*

Case No.	On Entry	With Maximum X-Ray Change	After Maximum X-Ray Change	On Discharge
1	13,000; 18	10,600; 20		8,000; 22
2	18,500; 29		21,500; 58	
3	51,000; 79	42,000; 80	16,700; 3	8,400; 2
4	18,500; 6	18,800; 6	40,000; 53	
5	12,000; 6		20,000; 11	
6	22,000; 16			14,000; 9
7		22,000; 57		11,000; 18

* Count per cubic millimeter.
† As percentage.

From the Department of Dermatology (Donald M. Pillsbury, M.D., Director), University of Pennsylvania School of Medicine.

In our own cases, the intensity of the eosinophilia paralleled the degree of allergic sensitivity, and there is hardly any doubt it was provoked by an allergic reaction taking place in the tissues. While it is true that the skin is the principal shock organ in allergic contact dermatitis, we have encountered individuals with constitutional reactions that were suggestive of a more generalized state of sensitization than is usually presumed in this form of allergy. There was evidence, for instance, that the muscle could react allergically, giving rise to painful symptoms that disappeared as the patient became hyposensitized by further injections. The possible existence of noncutaneous shock tissues when a contact allergen is given by an abnormal route (intramuscularly) raises a very interesting question, which is at the core of the problem of how the pulmonary infiltrates are formed in eosinophilic pneumonitis. Is the lung a primary shock organ and the infiltrate a consequence of an allergic reaction taking place there, or is there an alternative mechanism? If one reasons according to the custom of finding the simplest formulation to explain all the known data, then we shall set aside the likelihood of a primary hypersensitivity reaction in the lung, for such an explanation does not include the cases of eosinophilic pneumonitis that are of nonallergic origin. There is another explanation that has the further advantage of revealing why allergy is so often associated with the syndrome, though not, in our opinion, directly causative of it.

The eosinophilia, whether allergic or not, is, according to the hypothesis we are proposing, an indispensable and central element in the pathogenesis of the lung lesions. Vaughn's [4] studies are particularly instructive in providing an understanding of how eosinophilia can directly lead to pathological changes in the lung. He experimentally produced eosinophilia in nonsensitive guinea pigs by several different methods and found, by periodic histological study, that the eosinophils concentrated earliest in the lungs, later in the small intestines, and still later in the spleen. Histologically, the lungs showed consolidation, atelectasis, and congestion, with numerous eosinophils in and about the blood vessels and bronchi. These changes might easily have given rise to radiopacities had roentgenographic studies been done. Actually, since eosinophilic pneumonitis is a benign self-resolving disease, practically nothing is known about the histopathological alterations in the lung, save that they are massive enough to be revealed by chest x-rays. Until someone is enterprising enough to perform lung biopsies during the active stages, we will continue to remain ignorant on this score. In our opinion, the findings recorded in a few autopsy studies [5] probably reflect more the chronic changes of the underlying disease, usually asthma, or are open to criticism on the question of diagnosis.

Surveying the available clinical and pathological evidences, we might reconstruct the pathogenesis of eosinophilic pneumonitis as follows: The initial event is an eosinophilia, often allergic (such as asthma, intestinal parasitism, or drug allergy), but sometimes of other cause. Incidentally, it is altogether inadmissible to regard every drug reaction as allergic; the popular habit of blaming allergy for every exotic or otherwise inexplicable response is scientifically contemptible and productive of the greatest confusions. The eosinophilia provoked by drugs may have nothing to do with allergy; accordingly, when eosinophilic pneumonitis follows the administration of a drug, it is obligatory that the observer prove the allegation of allergy. In our own cases, we administered an agent to which the subjects were known to be hypersensitive and, indeed, the eosinophilia was in direct proportion to the degree of clinical hypersensitivity. It is only fair to remark, however, that, when huge amounts of 10% solution of 3-pentadecylcatechol in sesame oil (8 cc.) were given in one week to nonsensitive persons, a moderate eosinophilia up to 15% developed. Either the oil, the 3-pentadecylcatechol, or both, might have been responsible, but normally such an amount would be administered to sensitive persons over a period of months; furthermore, when the routine hyposensitization procedure was followed, the mildly sensitive individuals did not respond with an eosinophilia, which we take to mean that the eosinophilia regularly observed in the highly sensitive persons was truly allergic. Perhaps the oil potentiated the eosinophilogenic property of the allergen (3-pentadecylcatechol).

Regardless of how the eosinophilia comes about, it would seem according to Vaughn's findings [4] that the lungs and, less importantly, other viscera have a tendency to trap or filter out the eosinophils in some unknown way, possibly because eosinophils have an affinity for structures with high histamine reserves, of which the lung is supposed to be one.[6] Corollary evidence is afforded by Bierman and co-workers,[7] who showed a mechanism exists in the lungs for trapping leukocytes, though, unfortunately for our purposes, they did not study eosinophils. In the person destined to develop eosinophilic pneumonitis, this mechanism is overwhelmed—perhaps the eosinophils crowd in in enormous numbers and cannot be disposed of, leading to inflammatory responses. Perhaps similar events are taking place in other tissues, but, in such a transient syndrome, detection would be difficult. In fact, Ampuran [8] in India, who has observed in excess of a thousand cases of eosinophilic pneumonitis in association with intestinal parasitism, affirms that the manifestations are more widespread than commonly appreciated, especially in regard to gastrointestinal symptoms.

We particularly wish, as a result of our own experience, to raise the question of incomplete or abortive forms of eosinophilic pneumonitis. We encountered a number of patients who developed hacking cough and marked eosinophilia whose chest films showed definitely increased hilar markings, interpreted by the radiologist as consistent with the findings in "drug allergy." These symptoms and signs subsequently disappeared, more slowly than in classical eosinophilic pneumonitis, possibly because we continued the routine administration of 3-pentadecylcatechol, thereby maintaining the stimulus to eosinophil production. Following our thesis, we suggest that these cases also represented pulmonary eosinophil-trapping of a lesser degree and should be incorporated into a less rigid concept of eosinophilic pneumonitis. We do not subscribe to the belief that there is any natural relationship between this syndrome and polyarteritis nodosa.

One of our bona fide cases deserves special mention, because, after recovery, we undertook the injections of 3-pentadecylcatechol again until the patient was hyposensitized. The pneumonitis did not recur, even though the eosinophilia persisted.

Summary

Experience with seven cases of eosinophilic pneumonitis (Löffler's syndrome) developing during poison ivy hyposensitization stimulated an appraisal of the mechanism of production of pulmonary infiltrates. Our view is that the infiltrates are due to trapping of eosinophils in the lung and not, as commonly believed, to an allergic pulmonary reaction. Moreover, we hold that abortive forms of this syndrome may exist as drug reactions. These concepts require further experimental verification.

36th and Spruce streets (4) (Dr. Epstein).

This work was supported by the Medical Research and Development Board, Office of the Surgeon General, Department of the Army.

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NEW DRUGS AND AN ERA OF ANALGESIA AND AMNESIA

John S. Lundy, M.D., Rochester, Minn.

• The array of agents now available for anesthesia and analgesia should be exploited to the utmost. Anesthesia starts the evening before an operation, with an interview that helps to decide the entire plan for premedication and subsequent procedures; this plan must be one that leads to the objective more certainly and safely than any other conceivable means. In the evening, the patient generally receives a tranquilizer such as promethazine and a somnifacient such as ethchlorvynol. In the morning, the premedication commonly consists of promethazine, morphine, and atropine. General anesthesia proceeds with thiopental sodium or with a muscle relaxant, oxygen, and nitrous oxide. Dosages must be such as to avoid respiratory difficulties; it is better to allow the patient to breathe for himself. In the postoperative period promethazine is used for its antinauseant effect and for its synergism with analgesic drugs. New drugs useful for producing amnesia, for blocking sensory nerves, and for combating shock are available, and improvements are being made in equipment for monitoring the patient's condition, communicating with other departments, and transporting the patient within the hospital.

Today, as it has ever been since the time of Adam's rib, we are concerned about the control of pain. For many years we have had the means to control pain, but sometimes this could be done only at the risk of producing untoward results, such as addiction of the patient or even death from overdosage. Hence, even though the conquest of pain had been largely achieved, problems of great magnitude remained. We need have no hesitation in acknowledging the fact that impressive contributions to the solutions of these problems were made in the laboratories of pharmaceutical companies.

Caution an Indispensable Ingredient

In fact, progress has been such that we now rarely hear it said that physicians generally are kept up-to-date mainly through the detail man of the pharmaceutical house. Once this was so, to some degree; now it is not. What has happened, rather, is that the pharmaceutical houses have established themselves as important contributors to medical practice. Almost uniformly they give exhaustive consideration to the factor of safety before they allow a preparation to reach the market.

One of the outstanding examples of such caution was provided by Dr. J. F. Biehn, of the Abbott Laboratories, in the work that was done with thiopental (Pentothal) sodium before it was marketed. The product was not permitted to be sold until Dr. Biehn was satisfied as to its clinical application. More than two years elapsed before the agent reached the market, but the soundness of his decision is reflected in the success this drug has enjoyed over all the world.

Actually, I am glad to make this tribute to the pharmaceutical industry, because I have been impressed on many occasions with the contributions of that important field of endeavor to medical practice, particularly in my own field. I have also observed, on the other hand, that, when this paramount principle of caution has not been followed by a pharmaceutical maker, the confusion that results sometimes is associated with needless morbidity and even death. I therefore urge that even greater caution be exercised in the investigation of anesthetic drugs. The handling of anesthetics is similar to the handling of firearms—even a little carelessness may result in injury or death.

Chairman's address, read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

Premedication and Anesthesia an Inseparable Duality

Relief of pain during surgical operation or obstetric delivery of course has long been the province of the anesthesiologist and the anesthetist. But this is too simple a reduction of terms. There is infinitely more to relief of pain than the definition of it. I have a very definite idea about the administration of an anesthetic agent, and so I think the entire array of agents available for anesthesia should be exploited to the utmost. For example, I believe that the anesthesiologist who gives the anesthetic should order the preliminary medication and see the patient beforehand. If the operation is to be done in the morning, the anesthesiologist or his representative, who has been trained in his ways and thinks as he does, should see the patient the evening before the operation. At that time anesthesia is started, so far as I am concerned. This means that preliminary medication and the administration of the anesthetic are an inseparable duality. Premedication is prescribed in such a way and in such a dose that the patient reaches the precise stage of tranquility that I wish to exist when he is placed on the operating table. Thenceforward, with minor exceptions, the course of events ought to be almost inevitable: anesthesia should proceed so smoothly that the state of anesthesia at a given moment can be predicted by the clock. This means that the person in charge, like a conscientious airman, previously has filed a flight plan that, when carefully followed, leads to the objective more certainly and more safely than any other conceivable means.

At bedtime the average adult patient will receive from me a dose of 25 mg. of promethazine (Phenergan) by mouth. Of course, chlorpromazine (Thorazine) can be used, and, in addition, 500 mg. of ethchlorvynol (Placidyl), 400 mg. of methyprylon (Noludar, 3,3-diethyl-5-methyl-2, 4-piperidinedione), 1.5 to 3 grains (0.1 to 0.2 gm.) of pentobarbital (Nembutal), or 400 mg. of glutethimide (Doriden, α-ethyl-α-phenyl-glutarimide). The combination of promethazine with one of these other agents usually results in an exceptionally good night of sleep for the patient. Meprobamate (Equanil or Miltown) is a new drug that induces tranquility but has no synergistic effect on any other agent. It can be used in place of promethazine or chlorpromazine, and, if this is done, no change in the technique of anesthesia is required.

On the morning of the operation I like to call on the patient and ask him how he slept, so that I may know how effective the drug was that he received the night before. Usually, for an adult patient, I repeat the dose of 25 mg. of promethazine, giving it intramuscularly, and I administer ¼ or ½ grain (8 or 10 mg.) of morphine and 1/150 grain (0.4 mg.) of atropine. The dose of morphine at this time ought not to be as large as that customarily used, because, even in a good-sized, robust adult patient, the use of ¼ grain (15 mg.) of morphine often will mean that after anesthesia has been induced ventilation may be inadequate or may stop.

Caution in Dosage

When the plan just described has been used, particular care must be exercised in the dose of anesthetic agent employed. For example, when the patient is brought to the operating room, he already has had two doses of promethazine. This increment often makes it possible to reduce the needed amount of an anesthetic agent, such as thiopental sodium, to half the amount usually employed. Hence, if a muscle relaxant such as succinylcholine (Anectine or Quelicin chloride) has been used, nitrous oxide, at the rate of 7 liters per minute, and oxygen, at the rate of 3 liters per minute, will be administered by intubation, so that an arterial oxygen saturation of 100% is obtained. Here trouble may arise: it is a bit difficult, when this arrangement is first put into effect, to avoid administering the anesthetic agents too rapidly and in such a dose that respiratory depression or cessation of respiration develops. Such respiratory difficulties probably are not dangerous, since all anesthesiologists are now familiar with the technique of controlled respiration, which is produced by pressing on the breathing bag. This means that adequate ventilation can be maintained with ease, especially if an intratracheal tube is in place. Yet it is certainly better to allow the patient to breathe for himself. This is particularly important from the standpoint of the pH of the blood. I do not know to what degree marked changes in the pH of the blood could contribute to mortality, but that factor might be a reason why autopsy often does not offer an explanation of the cause of death of an anesthetized patient. When a patient breathes by himself, I feel very much safer about variations in the pH of the blood.

In the postoperative period, promethazine seems to control nausea and vomiting very well, particularly if it is administered along with pain-relieving drugs. Pain-relieving drugs also can be used in less than large doses, and the reduction is desirable. A drug such as promethazine or chlorpromazine, which has a synergistic action on pain-relieving drugs, may cause some of the mild, nonaddicting pain-relieving drugs to suffice in cases in which they have been inadequate previously. For the most part, it has been possible to neutralize the nausea associated with the use of morphine, but the constipating effect persists. Levorphanol (Levo-Dromoran) tartrate in a dose of 2 mg., with promethazine, has been of value in this respect. It is, moreover, particularly effective against posthemorrhoidal pain.

Bright New Spectrum of Anesthetic Agents

Interestingly enough, since promethazine has been used at the Mayo Clinic in preliminary medication for hemorrhoidectomy before sacral block done with either procaine hydrochloride or piperocaine (Metycaine) hydrochloride, only 2 of 300 patients were observed to have nausea and vomiting. One patient vomited once only; the other patient remained nauseated for half an hour but did not vomit. To me such a result is very dramatic, because over the years that I have employed sacral block anesthesia, nausea and vomiting followed it with such inveterate frequency that I always had a tank of oxygen available at the head of the table. The nurse anesthetist could thus administer oxygen from a bag, with a mask attached to it by a length of tubing. A needle valve permitted the oxygen to flow rapidly enough to keep the bag inflated. This device gave much relief to patients who were nauseated and who were inclined to vomit. We almost never use it now.

Ethoheptazine (heptacyclazine, WY-401) is more effective with promethazine than without it. It is a variation of meperidine (Demerol) hydrochloride brought about by the insertion of an extra carbon in the nucleus. Another drug, anileridine (Leritine), which is a variation of meperidine, is more potent in the control of pain than meperidine itself. I feel that, while I cannot condemn the use of meperidine for preliminary medication, I am opposed to its use in the postoperative period for more than a day or two, and I think it should not be used for chronic pain. My reason is that, once the patient shows any tendency toward addiction, withdrawal symptoms follow the short period of relief from pain obtained with meperidine. The insidious sequence is that greater and greater doses are required, until some addicts take as much as 3,000 mg. of the drug per day and reach a point at which convulsions occur.

A very useful drug that is less provocative of addiction is methadone hydrochloride. This generic term is used by some firms. One firm markets it under the name of Dolophine. Methadone often is prescribed for persons addicted to the use of meperidine while meperidine is being withheld from them, because they more easily tolerate the withdrawal of methadone than the withdrawal of meperidine.

A variety of drugs that show real promise have been introduced rather recently. Among these drugs is alphaprodine (Nisentil) hydrochloride. This drug contributes much to the safety of anesthesia. Another new drug, Viadril (21-hydroxy-pregnanedione sodium succinate), is very singular. I have been able to administer it with ordinary preliminary medication without use of promethazine. A dose of 1 cc. of a 1% solution of Viadril per pound of body weight is injected through a large needle (15 gauge) into the vein in the antecubital fossa without a blood-pressure cuff on the arm, but with the forearm elevated, so that the drug runs downhill rapidly. Even so, while the drug is being infused, the patient will complain that he has pain in the arm in which the vein is located. When this occurs I irrigate the vein with a parenterally given fluid such as isotonic solution of sodium chloride or a 5% solution of dextrose in water. The necessity for such action is a deterrent to the use of this agent. However, since it is a steroid made from Mexican yams, with a formula almost identical to that of testosterone, except that Viadril has a succinate group in it, the dosage can be somewhat reduced if promethazine has been given beforehand. Moreover, curare can be used to keep the dose of the drug small, since there is little or no laryngeal spasm when Viadril is employed—an important feature in intubation.

Analgesia and Amnesia

Another new drug that I have used is Dolitrone (5-ethyl-6-phenyl-metathiazane-2,4-dione). This is an agent of considerable promise both in anesthesiology and in any field in which hypnosis and analgesia are important. With a full dose of this drug, usually used intravenously in a 2.5% concentration, satisfactory anesthesia can be produced. Curare can be used with it, because Dolitrone does not produce laryngeal spasm. If half an anesthetic dose is used, analgesia and amnesia are produced, and if half the analgesic dose is administered, amnesia is produced. The amnesic state may not be recognized by either the anesthesiologist or the patient at the moment, but subsequently the patient says he does not remember anything. This would be particularly useful during procedures in the course of which patients should be interrogated.

The amnesic state is extremely useful for patients who dread the induction of local anesthesia or a nerve block. The potentialities seem almost boundless; I have used Dolitrone to advantage particularly in patients who are to have teeth extracted under local anesthesia but who will not tolerate the injection of a local anesthetic and do not wish to remember anything of the extraction. I also have used Dolitrone to advantage in patients who are to undergo sacral block anesthesia and who are completely intolerant to that method. I have used Dolitrone for patients who could not, because of some injury or deformity, assume the position necessary for the operation.

Here, again, however, the native caution of the anesthesiologist must come to the fore. For example, I administered Dolitrone to a patient whose injuries in an automobile accident subsequently prevented her from lying in the so-called Buie position for sacral block anesthesia and hemorrhoidectomy. A small dose of Dolitrone was injected into a vein in the back of the hand. When the patient assumes this position, which resembles the Kraske position, the drug must ascend from the small veins to the large ones. Under such circumstances thrombophlebitis is likely to develop in the vein that is the site of injection. Hence, when either Viadril or Dolitrone is used, this difficulty of irritation of a vein must be overcome. This is a challenge directed peculiarly at the anesthesiologist, for laboratory research may not be conducive to a ready solution. Sometimes it is difficult to produce a lesion in a research laboratory and then deal with it. The thrombophlebitis associated with the use of Dolitrone and Viadril will continue to appear unless we can find some means to counter it prophylactically.

I once administered Dolitrone to a patient sitting in an operating chair who gagged so severely that the surgeon could hardly infiltrate the tonsillar pillars with an anesthetic agent preliminary to tonsillectomy. The surgeon finally gave up and called me, saying, "Do something." The situation was new to me, but I injected 12 cc. of a 2.5% solution of Dolitrone in 12 minutes into a vein in the back of the patient's hand. He remembered the insertion of the needle but nothing more, although he sat up and opened his mouth when asked to do so. He said he could recall no part of the procedure until he was shown the removed tonsils. In this patient the same vein was used that had been employed in the other patient but, interestingly enough, no difficulty ensued. The position of the patient during operation of course was entirely different.

On another occasion the same surgeon asked me to "do something" for a woman who became hysterical during his attempt to operate on her nose. Local anesthesia had been used. I administered 6 cc. of a 2.5% solution of Dolitrone and brought her under control.

Hazards, New and Old

By reducing the dose of the anesthetic agent by means of preliminary medication, we enhance the safety of the patient. However, there are other measures concerning the safety of patients. Surgical patients who have been given cortisone previously but are no longer taking it must be prepared for the stress of operation by receiving cortisone two or three days before they are operated on, on the day of operation, and for two or three days after operation. Not all operations are elective, however, and not all patients are prepared properly, and so it is fortunate that we have lyophilized hydrocortisone (Solu-Cortef). An intravenous injection of 100 mg. of this drug dissolved in 2 cc. of water may be given to a patient who is in a state of neurogenic or surgical shock. If the response is poor, adrenocortical extract should be used.

I cannot emphasize too strongly the responsibility of the physician to advise his patient that he is receiving cortisone, if this agent is being administered. In the face of an impending operation, the patient is expected to notify a surgeon that he has received cortisone, but that is not possible unless the patient himself knows what he has received.

It is very helpful indeed to administer lyophilized hydrocortisone to any patient, whether or not he has received cortisone, who does not respond properly to the administration of blood, dextran, parenterally given fluids, or stimulants or a combination of these. What we need badly is some means of marking the soles of the feet, or some other usually covered area, as in a tattoo, to set forth indelibly a patient's blood group and Rh factor so that, in an emergency, the correct blood can be given quickly.

A very important contribution to those of us who employ massive doses of drugs, and particularly narcotic agents, was the development of nalorphine (Nalline, N-allylnormorphine) hydrochloride, a drug that will neutralize the effect of morphine very quickly when given intravenously. However, it does have the disadvantage that, if the patient has taken a large overdose of, say, a barbiturate and the nature of the drug is unknown, the use of nalorphine would markedly increase the depression rather than relieve it. This might be regarded as an aid in inverse character, since it might help to establish that the drug the patient had taken was not morphine. Yet, until very recently, we had nothing that would neutralize the nalorphine except morphine, but few of us would have enough courage to administer that drug for such a purpose.

Recently an agent called Lorfan tartrate (3-hydroxy-N-allylmorphinan) has been developed, which is antagonistic to a number of drugs and is without other effect. It has increased the safety with which we can manage patients who, either accidentally or purposely, receive an overdose of these depressant drugs.

Refinements of Older Techniques

Diagnostic and therapeutic block anesthesia is receiving some of the attention it deserves. Papers and books on the subject are appearing more frequently. This situation is gratifying to me, for over the years I have been convinced that more attention needs to be paid to patients who complain chiefly of pain. The first impulse of some is to refer these patients to a psychiatrist, but it is not mine. Rather, I try to find the pathway of pain with the aid of nerve-blocking agents, if necessary. I have advocated the use of roentgenograms to identify the place at which the point of a needle lies. I still think that the principle unquestionably is right, but unfortunately it is not generally employed. Surely, if an injection is worth attention at all, it is worth doing well. The roentgenogram is convincing to the neurosurgeon when it suggests that certain nerves be cut, and it makes a fine record, so that if the block needs to be repeated, the needles can again be placed as they were in the first roentgenogram. Subsequent injections probably could be done with accuracy any place in the world, if the original roentgenogram were forwarded to the physician concerned. When sympathetic nerves are to be blocked semipermanently, as they are in an alcohol sympathectomy, then a sweating pattern should be made two or three days after the block has been done. Then, if the effect of the alcohol wears off, another sweating pattern can be made and, if it is seen that the sweating has returned, the block can be repeated. Conversely, if the sweating pattern is unchanged, no advantage will accrue from another block.

Pain associated with a postoperative incision and scar or even with a tear, such as might occur in the vault of the vagina when forceps have been used in obstetric delivery, may be attributable to the nerves as well as to other parts of the tissues that have been injured. In the healing process the severed nerves occasionally do not rejoin, and, if they do not, multitudes of small neuromas probably have developed. I have had at least two patients who suffered pain lateral to a scar in the lower region of the abdomen; by blocking the 11th and 12th thoracic nerves and the first lumbar nerve, I have been able to relieve the pain. Subsequently, the sensory roots of these nerves were severed surgically, and the patients have been free of pain ever since. One patient who had had a tear in the right vault of the vagina during a forceps delivery 10 years previously obtained relief when the second sacral nerve on the right side was blocked; subsequently, this sensory root was severed surgically and since the severance, more than a year ago, she has obtained relief estimated at 85%.

I find that relief should last for some hours to be convincing, and so I have prepared a mixture of a local anesthetic agent. I now use procaine hydrochloride in either a 1, 2, or 3% concentration, plus a 2.5% solution of ammonium sulfate and a 2% solution of benzyl alcohol. With this mixture I obviate those difficulties that can be caused by alcohol, and the relief obtained often lasts much longer than that produced by a plain local anesthetic. A procedure such as this will indicate perhaps either that operation should be done or that alcohol should be used later.

Actually, the use of injections of alcohol demands extreme precision. For instance, the needles must be placed exactly and located by roentgenograms; then

the alcohol is injected, 0.5 cc. at a time, with a momentary pause between the deposit of each 0.5 cc. I have called this the "spot-wetting" technique, and it is most satisfactory when small quantities of alcohol are injected. However, if the quantity is more than sufficient to wet the spot where the tissue is situated, the alcohol may spread to other nerves and result in alcohol neuritis, which is the dread of anyone who does this work.

It is amazing, however, that in some cases the effects of alcohol sympathectomy have lasted for a year or more. Blood supply has been increased in many instances, and the procedure has been helpful in skin grafting and in many instances of the shoulder-arm-hand syndrome in which physical therapy would have been impossible unless the block had been done.

Recently, I injected alcohol into a patient for neuralgia of the left superior laryngeal nerve; nerve section was done, and for three months the patient has been free of stabbing pains in the throat that had occurred whenever he swallowed and sometimes when he did not. I was able to establish a diagnosis through differential nerve blocks to show that stellate block would not relieve him but that a block of the superior laryngeal nerve would give relief.

A Look Forward

It would be interesting to know what the immediate future holds for us in this field. It is quite possible, and perhaps probable, that greatly simplified devices will replace our present gas machines. There is not much doubt in my mind that in the immediate future we will no longer say "nitrous oxide and oxygen" but we will reverse the order and say "oxygen and nitrous oxide." The trend, I think, is definitely in the direction of placing the burden of anesthesia on the preliminary medication and intravenously given medicaments, plus muscle relaxants. This trend has validity for many reasons: for one, the fire and explosion hazards of anesthetics can be reduced or abolished thereby. The use of an intratracheal tube, however, becomes important, since respiration frequently is depressed to some extent and therefore the need for oxygen is paramount. Consequently, all the oxygen necessary to approach an arterial oxygen saturation of 100% will be used, and the rest of the breathing space will be occupied with nitrous oxide.

In view of the scarcity of personnel to administer anesthetics, I am sure that more and more visual aids will be employed in teaching. As an example, I am making a gauge with which to teach the newcomer how far to insert an intratracheal tube. As a result of this experience I believe I can say that in the future intratracheal tubes will be marked in such a way that, so long as the mark is visible above the larnyx, the point of the tube will reach about the midpoint of the trachea.

The population of the United States is increasing so rapidly that we must find some quicker way of teaching anesthesia techniques. In 1926 I published a paper entitled "Balanced Anesthesia," and now, 30 years later, I can see that, while I had part of the idea in 1926, I was handicapped because of a lack of agents with which to balance anesthesia adequately. I think that we now can more truly speak of "balanced anesthesia" as a reality than we could 30 years ago. At that time J. T. Gwathmey was speaking of the synergistic action of morphine and magnesium sulfate. He also had the idea that one drug could be made to help another, and, now that such drugs are available, a new flexibility has been established. Anesthetic agents will not have to carry the entire burden of relief of pain during operation, and so smaller and safer doses will be employed. I do not mean to imply that the person employing these agents can do so mechanically. He will have to be well informed and skillful; he will have to know more and more about more drugs and not less and less about them. However, if instruction in some lines can be accelerated, it will leave more time for a better understanding of pharmacology in anesthesiology.

In the past we treated shock when it occurred. I submit that in the future prophylactic treatment of shock will be possible. I think this will be the outgrowth of a better understanding of the hormones. It is my hope that in some way in the future we will be able to desensitize patients, especially to antibiotic agents, for, as progress is made in the development of new remedies for illness, we are constantly faced with the concomitant creation of new hazards. We shall need protective assistance in order to survive and to treat more and more conditions that either have been unrecognized or have been resistant to our treatment.

I have no doubt that devices for monitoring a patient's condition will come into use. These doubtless will include a communication system that will make it possible for expert supervision and advice to be quickly available, not only in every operating room but also in every postanesthesia observation room and no doubt, in time, in each room in the hospital. The hospitals of the future, I think, will be very different from those to which we are accustomed. The transportation of patients within the building could be improved. When the burden of patients who will have to be cared for is considered, it is seen that means will have to be devised so that one physician or one nurse or even one orderly will be able to increase his work load. Certainly, those of us in medicine and its ancillary fields will always be outnumbered by an ailing population, which means that our only hope is to increase our personal efficiency. There will be many improvements that I am not able to foresee. Time does not permit indefinite speculation and prudence precludes it, but I am grateful when I reflect that I lived in an era in which so many marvelous developments were made. I am confident that patients of the future will be cared for better than I could envisage. I am sure that those who are entering the specialty of anesthesiology will derive untold satisfaction from their activities, particularly because they will have at their command what their forebears did not: an impressive array of agents and methods that, by virtue of their infinite variety, can swiftly be exploited to meet the exigencies presented by any type of patient or condition. Those will be happy days indeed, and I am glad it will be so.

200 First St. S.W.

ELEMENTS OF A RURAL RHEUMATIC FEVER PROGRAM

Harry A. Grubschmidt, M.D., Santa Rosa, Calif.

• *The community rheumatic fever program here described has been administered by a county department of health under the auspices of a state crippled children service, with funds coming from both county and state. Local medical, laboratory, clinic, and hospital facilities are utilized. The plan has been to encompass all aspects of the patient's illness, to enlist the cooperation and continue the education of the patient's family as to his illness, to keep adequate records, and to formulate policies that would insure the cooperation of the physicians and of the interested official and voluntary organizations. Volunteer helpers made it possible to maintain a large anteroom as a combined reception, dressing, and recreation area, which made it much easier for families with several children. Volunteers also served in clerical capacities, provided necessary transportation, and in some instances donated professional services. The program resulted in more accurate diagnoses, more systematic treatment, and a striking reduction in the incidence of active rheumatic fever in the program's patient population.*

It is the purpose of this discussion to outline the structure of a successful rheumatic fever program achieved through a fusion of community effort and resources and the California State Crippled Children Services. The enthusiastic support of numerous volunteer workers and the assistance of voluntary and official agencies made it possible to establish an all-embracing program in a rural community with a scattered population, despite limited financial support. The success of the project after five years is indicated by the reduction in the number of cases of active rheumatic fever, the prevention of complications, and the high percentage of follow-up visits. Our results have paralleled those achieved in other sections of the country where good medical care and adequate educational campaigns are operative.

The acute problem has now been met. The decrease in the number of patients with active rheumatic fever during 1954 and 1955 has allowed us to release most of our volunteer helpers and to suspend many of the activities described in the following pages. It is hoped that an account of the operation of the program and of the techniques and procedures worked out during the first five years of its existence will aid in solving the same or similar problems in other rural areas. In this discussion the medical aspects will be mentioned only to bring out the scope of the project; the emphasis will be on its organization.

Summary of Operation

The rheumatic fever program, which was officially begun in February, 1951, under the auspices of the California State Crippled Children Services, is administered by the Sonoma County Department of Health. Funds come from both county and state, and local medical, laboratory, clinic, and hospital facilities are utilized. The program serves a widespread rural area with an approximate population in 1951 of 105,000 people. All persons under 21 years of age who reside in the county are eligible for care. The physical facilities are situated in Santa Rosa, the county seat, the largest and most centrally located city in Sonoma County. The clinic building utilized for the project is located on the grounds of the Sonoma County Hospital; the hospital also provides x-ray and laboratory facilities. A special section of the pediatric ward of the hospital is reserved for patients assigned through the program. This is advantageous since it provides nursing personnel experienced in handling children. Also, because this section is adjacent to the hospital schoolroom, the children can be wheeled to class in their beds early during their hospital stay and can continue their schooling in familiar group fashion.

From the Department of Medicine, University of California School of Medicine, San Francisco, and Director, Sonoma County Rheumatic Fever Program. The Sonoma County Rheumatic Fever Program is sponsored by the Crippled Children Services of the State of California.

Patients are referred chiefly by physicians, either from their office practices or in their capacity as medical examiners in the public schools, and also by school health nurses, teachers, and parents. After a patient has been referred, the family is sent a notice to bring the child to the laboratory and x-ray departments on a specified day. On that day one blood sample is drawn for the required examinations, and throat swabs, urine specimens, x-ray films, and electrocardiograms are taken. The patient is then instructed to appear at the clinic five days later for examination.

The clinic is held at the same time on the same day each week throughout the year, except on legal holidays. Patients are seen by a local cardiologist and a pediatrician, assisted by public health nurses assigned by the Sonoma County Department of Health. The two physicians make the initial and follow-up examinations and consult freely with each other. The current laboratory and x-ray data and the patient's chart, including data from a questionnaire filled out by the parents and a Wetzel grid, are reviewed by the physician at the time of each examination. When necessary, consultation with medical specialists in the same or other fields is made available to the program physicians through the Crippled Children Services of the State of California, which also provides prophylactic medicaments as needed. Ancillary services, such as vocational rehabilitation, dietetic aid, and social service consultation, are also at the disposal of the medical personnel. The local health department is responsible for making appointments, keeping records, and acting as an interdepartmental liaison agent.

The program is set up to provide local facilities for the diagnosis and care of active and inactive cases of rheumatic fever and the referral of cases of congenital heart disease as they are discovered. The disposition of cases includes direct admission of acutely ill patients to the hospital for diagnostic study and care, hospitalization or bed care at home for patients with active rheumatic fever, and appointments for follow-up examinations at the clinic for patients who are to be watched. Convalescent patients are sent home or to a facility in a nearby metropolitan area (about 60 miles distant). Patients who have diseases other than rheumatic fever are referred to the family physician or an appropriate clinic.

Objectives

At the time the program was organized in 1951, the group established certain broad aims that would insure maximum satisfaction, not only to the patients and their families, but to the personnel of the program as well. These objectives were as follows: 1. Care was to be as all-encompassing as possible; all aspects of the patient's illness, including familial and environmental factors, were to be the concern of the group operating the program. 2. Every effort was to be exerted to secure the good will and cooperation of the patient and his family in carrying out instructions, keeping appointments, and insuring continued observation. 3. Full and accurate records on individual patients and on the progress of the entire program were to be maintained. These records would be evaluated periodically as a guide in modifying the direction of the program's activities. 4. A plan of continuing education of patient and family was to be put into effect to stimulate their interest and to aid them in cooperating intelligently in the management of the patient. A wider aspect of this educational project would be extended to the county population in general and also to physicians. 5. At all times the policies of the program would be shaped to win the cooperation of physicians in the county and of the official and voluntary agencies that were interested in the patient.

Recruitment of Outside Assistance

It quickly became apparent that these objectives could not be fully attained with the limited funds and facilities available, unless we could interest other groups in working with us. To acquaint other groups with the program, a luncheon meeting was held on the second and fourth weeks of each month after the morning clinic. Representatives of various public agencies and associations were invited to sit in with the group and discuss the program. Special emphasis was laid upon the role they could play in helping us reach our first objective—maximum well-rounded care for the patient. A partial list of the agencies and groups invited included state-sponsored consultants in public health, dietetics, recreational therapy, physical therapy, medical social service and policy-making; personnel from the division of vocational rehabilitation and school health nursing; a school psychologist; departmental heads of the city and county school systems; county librarians; members of the Council of Churches, the county social welfare department, and various nursing organizations; personnel from the laboratory and x-ray departments of the county hospital; representatives from various lay organizations that had active health and welfare committees; interested physicians from the county medical society; and home and hospital teachers. In addition, a call was put out for volunteer helpers; this was done by active solicitation of various clubs and public agencies and by personal approach to friends and acquaintances. The response was gratifying and included persons with special skills of value to the program.

Use of Volunteer Workers

The assistance of volunteer workers made it possible to achieve our second and third objectives. A volunteer acted as recreational supervisor in the large anteroom used as a combination reception-dressing area where the patients, their parents or guardians, and their siblings assembled prior to and during the time the patient was seen in the examining room. This worker supplied much of her own equipment, including record player and records, paints, crayons, puzzles, picture books, paste and papier mâché materials, transparencies, and viewers, and set up a highly effective play area. A local businessman donated tables and chairs suitable for children, and other community members contributed play materials.

All the children, both patients and their brothers and sisters, were welcome to enjoy the recreational facilities. This encouraged early arrivals at the clinic, where patients were seen on a first-come basis, since the parents knew the children would be kept occupied during any waiting period. It also made attendance easier for parents who could not leave their other children alone at home. The play project also allowed the public health nurses to weigh and measure patients and record pulse and temperature with a minimum of noisy interference, to counsel parents on diet, hygiene, and interpretation of physicians' orders, and to orient parents of new patients in the work of the program. It gave parents undisturbed time to construct a "life chart" in the case of new patients and to fill out the simple questionnaire on interval history that was required at each visit.

Two additional volunteer workers assisted in the reception-dressing room in recreational supervision or in helping the nurses. As they developed experience they were able to substitute adequately for any of the members of the group who could not attend a clinic session. A clinical psychologist with considerable experience in dealing with school children volunteered her services. It was her function to alert the group to any important emotional problems; she also carried out systematic mental testing and interpreted the "life charts" that were used to evaluate the emotional needs and mental capabilities of our patients. In instances of acute emotional disturbance, therapy was started by this volunteer worker until a more permanent arrangement could be made.

Another volunteer served in a clerical capacity, classifying and filing the records of the patients according to diagnosis. A special flagging system per-

mitted prompt identification of charts of persons with currently active or inactive rheumatic fever, as well as those with a primary diagnosis of congenital heart disease. This worker also kept a record of these cases on a county map by means of pins with colored heads, each color designating a different diagnostic category. The map, files, and a numerical tabulation were revised each week in accordance with the changes that had taken place, and the results were made available to the group in staff conferences. Another volunteer was trained to plot the Wetzel grid kept currently on each patient.

It was hoped that volunteer workers could be found to relieve the mothers of patients cared for at home, giving them one free afternoon a week. This proved difficult, since untrained persons are usually unwilling to accept the responsibility of supervising a sick child in a strange home. The volunteer recreational therapist, however, did make one or more home visits to instruct the mothers of newly confined patients on ways of entertaining a bedridden child. Where transportation to the clinic was a problem, voluntary agencies, such as the Red Cross, were able at times to provide cars and drivers, or occasionally an individual would offer her services. At other times, the public health nurses used their own automobiles to call for and return patients.

Staff Conferences

After each clinic session, the two physicians, the public health nurses, and the volunteers met to discuss the medical and sociologic aspects of cases in patients seen that morning. Each person was encouraged to speak freely. Recommendations were noted, and the responsibility for seeing that they were carried out was placed with the public health nurse in whose district the patient resided. The progress of patients seen previously who had required special handling was briefly reviewed. Luncheon meetings followed these weekly staff conferences; the first and third of these in each month were devoted to discussing the operation of the program as a whole, including inadequacies and plans for improvement. These meetings generated a spirit of unity among the members of the group, which was responsible for much of the enthusiasm that made it possible to carry out the routine of the program week after week.

Education

As stated in our fourth objective, the group agreed that much of the ultimate success of the program lay in a continuing and effective educational plan. The first steps were directed toward acquainting parents and patients with the natural history of the disease through weekly contact with the public health nurses at the clinic and by means of brochures, pamphlets, and instruction sheets. Elements of good dietary practices and details of home care were taught largely through home visits by the nurses. In cooperation with the local Heart Association, the group sent pamphlets on rheumatic fever, its recognition, and the need for action to every student at the elementary school level and to every teacher in the county.

A one-meeting course in rheumatic fever, supplemented by multigraphed descriptive literature, was arranged for public health and school nurses of Sonoma and adjacent counties. With financial assistance from the director of the Sonoma County Health Department and technical aid from the county photographic department, the operational steps of the program were filmed on 35-mm. color slides. The film, followed by talks on rheumatic fever by the physicians and public health nurses associated with the program, was shown to women's clubs, parent-teacher associations, and similar groups all over the county.

Function in the Community

Our fifth objective was that of establishing reciprocal cooperative relations with the community. To be successful the program should be well received by all, and in turn should be the recipient of benefits from the community. To aid in accomplishing this objective, duplicate reports of the findings and recommendations in each case were sent to the appropriate school authorities, the county school psychologist, and, when known, to the family physician. Other official agencies were notified whenever they were concerned with the patient's welfare. In turn, the agencies would offer their aid. For example, at our request the welfare department would grant temporary dollar increases to needy families for the purchase of food or medicaments. The county librarian, together with the county health department educator, assembled books and magazine articles on rheumatic fever, home nursing care, games and hobbies, and similar subjects, which were kept on a separate shelf in the library; the list of this material was published in the local newspaper. The county library bookmobile was kept informed of the location of homebound patients throughout the county, and efforts were made to get pertinent reading matter to them. The school health nursing division reported to the program children who were absent from school for suspected or known rheumatic fever. Reports of new cases, however, were made in somewhat sketchy fashion. It was not possible to solve this problem completely, despite the fact that rheumatic fever is a reportable disease in this county. Other county and state agencies also gave their services. The partial list of the organizations that sent representatives to our luncheon meetings, as described earlier, indicates the scope of the assistance given to the patients and families concerned in this program.

Results

Over 550 patients have passed through the clinic during the five years the program has been in operation. Of this number, the conditions in approximately 140 were diagnosed as inactive rheumatic fever with or without residual heart disease and in approximately 50 as congenital heart disease with or without associated rheumatic fever. In 90 cases a definitive diagnosis has not yet been made, and the patients are still under observation. Some of these patients have equivocal histories but there are no objective findings; others have vague symptoms and heart murmurs that

cannot be interpreted definitively. The remaining patients are regarded as not having had rheumatic fever.

During the total five-year period, no more than 10 patients refused or failed to return for further observation. In most cases in which patients with inactive rheumatic fever have returned to private care, their physicians have usually permitted us to examine them at least once a year. In addition, we have been able to maintain good rapport with our patients to the extent that they will return to the clinic for check-up examinations whenever requested to do so. Thus, we have been able to achieve a high percentage of follow-up studies in our cases.

During the five years of the program's activity, the number of cases of active rheumatic fever has diminished steadily. Thirteen cases were treated in 1951, 14 cases, 5 of which were recurrences, in 1952, and 23 cases, 5 of which were recurrences, in 1953. In 1954, six cases were seen, only one of which was due to recurrence. In 1955, we saw only one case of active rheumatic fever and no recurrences.

The progressive decrease in recurrences resulted in some measure from improvements in our methods of prophylaxis. During the first two years of the program, the type of antibiotic, the dosage and duration of treatment, as well as the choice of patient, were left to the discretion of the physician. As more information was obtained, penicillin, 200,000 to 400,000 units daily, was prescribed automatically for all patients with a diagnosis of active or inactive rheumatic fever unless they were sensitive to the drug, in which case use of a sulfonamide was substituted. During the last year, benzathine pencillin G, in a dose of 200,000 units once daily, has been employed as a prophylactic agent. The regularity with which patients take medicaments is also important in prophylaxis. Although we have no accurate way of determining this factor, the fact that the antibiotics are supplied through the program provides a rough check. Initially, about half the patients neglected to have their prescriptions filled regularly. As our mutual understanding improved, most of the patients began to renew their prescriptions at the anticipated intervals, indicating that they were taking their medicament faithfully.

The cost of the program per patient's clinic visit was estimated from the figures available for 1955, which were fairly typical of the five years of our operation. During this year the patients' visits totaled 473, of which 78 were initial visits. The estimate was based on the cost of all laboratory tests (complete blood count, sedimentation rate, urinalysis, antistreptolysin titer, C-reactive protein, Venereal Disease Research Laboratory test, Brucella agglutination, and throat culture), electrocardiograms, x-ray films, and prophylactic medicaments but did not cover hidden expenses, such as physicians' services, clinic space, public health nursing, stationery, and similar items. On this basis, the average total cost per patient per clinic visit amounted to $4.64.

MEDICAL SOCIETY GRIEVANCE COMMITTEES IN RELATION TO HEALTH AND ACCIDENT INSURANCE

Percy E. Hopkins, M.D., Chicago

• Grievance committees within county and state medical societies have been active for at least four decades. Originally involving only the patient and the physician, they now deal also with insurance companies and other organizations concerned with the financing of medical care. A survey of 254 cases filed with a county medical society in 1955 shows that such a committee can be very effective in preventing or resolving misunderstandings, clarifying and adjusting differences between physicians and patients, and assisting in the maintenance of high levels of professional deportment. It is necessary that the public be informed of the existence of grievance committees and be encouraged to use them.

Inasmuch as the purposes of grievance committees are to prevent or resolve misunderstandings, to clarify and adjust differences between physicians and patients, and to assist in maintaining the high levels of professional deportment already established by the Principles of Medical Ethics, and because of the fact that a great number of people are protected by health and accident insurance today, it is only natural to anticipate increasing contact between insurance companies and medical society grievance committees. I believe it is reasonable to predict also that as a greater number of people purchase health and accident insurance, and especially types of coverage in which the benefits are not specifically delineated, such as major medical expense contracts, it might become necessary for these two groups to maintain rather close liaison in order that misunderstandings might be prevented. I have complete faith in the integrity of the medical profession as well as that of the insurance industry, but I realize that a dollar will purchase only so much in the way of a benefit and that the average physician is now confronted with the fact that a large percentage of his patients have some type of insurance. Occasionally, perhaps the patient and the physician anticipate a greater benefit than is actually provided. This, with a third party appearing on the scene, could result in some misunderstanding on the part of the patient or the physician.

For instance, the patient could assume that the specific benefit to which he might be entitled would be sufficient to compensate the physician adequately

Read in the Educational Seminar, conducted by the Bureau of Accident and Health Underwriters and Health and Accident Underwriters Conference, New York, Feb. 7, 1956.

for the service rendered, but, in the absence of an agreement to that effect, the physician could have some other idea about the matter. Both patient and physician might be entirely sincere in this regard, and such a situation should offer little difficulty of solution if the patient is informed as to the benefits provided for. Such a situation would probably not be one in which the insurance company would be involved, but, if the patient feels that the charge is unusual, the matter should be brought to the attention of the grievance committee of the county medical society of which the physician is a member. It is my humble opinion, with regard to the financing of the costs of medical care, that insurance companies in every instance in which they are the responsible party are entitled to the same moral, ethical, and civil rights as the individual in utilizing the service of grievance committees of the medical societies.

Organization of Grievance Committees

Recently, the House of Delegates of the American Medical Association authorized the appointment of a committee to act as a guide in the organization and functioning of grievance committees in the constituent associations and component societies (state and county). The House of Delegates was quite specific in stating that these committees were to be known as grievance committees and encouragement was to be given to the constituent and component societies not only to cause these committees to be organized but to get them functioning. This committee at the top level in the American Medical Association has set up guides that may be adapted to fit local conditions with regard to the organization and functioning of the local committees and should be of great help in improving their effectiveness.

It is interesting to note that the idea of grievance committees within state and county medical societies was conceived years ago. The Chicago Medical Society has had such a committee that has been active since as early as 1917, if not earlier. In the past 10 years the number of grievance committees has grown rapidly, until today all 48 state medical societies, those of the District of Columbia and Hawaii, and over 700 county medical societies have committees functioning as grievance committees where the public (and insurance companies) may take their complaints.

Committee Membership

The make-up of committees may vary in different states, and this is only natural inasmuch as there are variations in the geography and population among the states and territories served. These factors might influence the number of members on a committee. In some areas where membership in a medical society is limited, it might be impracticable to have more than a small number of physicians serve or get together at one time to conduct a meeting, and in other areas a more nearly ideal committee might be composed of 7 to 10 members having regard to type of practice, age, experience in medical organization, geographical location, and temperament.

While committees have been organized at the state, as well as at the county, level there is no intent to violate a component society's autonomy, nor does this constitute a duplication of organization or effort. There are some county societies that have such a small number of members that they do not have grievance committees, and in some small societies it would probably be impossible for any one member to be the subject of investigation by his few colleagues in the county. Again, for certain reasons known best by the individual, a physician, the subject of a charge, might feel that he would like to have a change of venue or have his hearing conducted at the state level. Other reasons may exist that also make a state committee desirable. The state committee may also be used as a court of appeals and is set up primarily to help the component society in any manner possible. Members on these committees may be elected or appointed, with members serving overlapping terms so that experienced men will always be serving. Members of a grievance committee should not simultaneously serve or act on committees having to do with discipline.

Filing of Complaints

A complaint may be filed at either the state or county level and in most instances will be adjudicated at the local level. When such a grievance is presented in writing to the secretary of the state or county medical society, it will automatically be referred to the grievance committee at the level that is to hear it. Naturally it is desirable that these grievances be adjudicated at the local level, but, as has been previously stated, this may be impracticable. In either event, the grievance will be referred to the grievance committee at the proper level under the circumstances. Complaints against physicians should be submitted in writing with all pertinent facts and details pertaining to them. The presentation of specific data frequently will result in the prevention or correction of a misunderstanding between complainant and complainee, bringing about a saving of time and expense that an appearance would require and perhaps even the settlement of a difference to the satisfaction of all concerned.

There should be no limitation upon the sources of complaints other than that the source be sincere, whether it be public or private, professional or lay. Complainant and physician should be privileged to appear before the committee and present whatever witnesses or evidence seems desirable. The right to appeal the decision of the grievance committee to the appropriate superior body should be provided for under any grievance committee organization arrangement.

Conduct of Investigations

A prerequisite to any investigation by a grievance committee requires that the member must respond to any reasonable demand on the part of the committee, although it should be distinctly understood that the physician summoned before a grievance committee is not on trial. Failure to respond to the

committee's invitation usually results in the filing of charges that could imperil a member's standing in his society. While a grievance committee should be empowered and willing to initiate investigations when matters justifying action come to its attention, it should be remembered that its function is to investigate, mediate, arbitrate, and possibly recommend disciplinary action. It should never act as a trial body. All medical societies should have other bodies or committees specifically designed for that purpose.

While there may be a few exceptions, it has been my experience with grievance committees over a considerable number of years that there is evident an avowed purpose among the members to be consistent, sympathetic, and impartial because there is a realization that the honest and capable physician is afforded protection as well as the patient or complainant. To the average physician sitting on a grievance committee, the thought of participating in a so-called whitewashing procedure is just as abhorrent as the other extreme of washing our professional dirty linen in public.

Informing the Public

Inasmuch as grievance committees are designed for the use of the public, it is necessary that the public be informed of their existence and encouraged to use them. Such publicity in the past few years has undoubtedly caused an increase in the number of complaints filed against doctors, but it is my belief that this is only the peak of a wave that will level off and probably recede. It is undoubtedly just as important to keep the medical profession informed through professional mediums, such as medical journals and news letters, of the volume and progress of the work done by the committee. Release of such information through the lay press could perhaps defeat the purpose for which the committee was designed by causing a flood of complaints by persons with grievances that are largely unreasonable or unrealistic.

Report of a Committee

This brings to mind the problem of abuse of these committees, and I do not hesitate to voice an opinion that there is not much likelihood of an insurance company's abusing the privilege of utilizing these grievance committees. In a survey of 254 cases filed with a county medical society during the year of 1955, it was found that at least 10 complaints had been filed by people who were so patently mental cases that further consideration by the committee was abandoned. In three cases a misunderstanding existed that the committee was able to explain, which resulted in withdrawal of the complaints. In 55 cases, after full investigation, the committee was of the opinion that the complaint was not justified. These complaints had to do with treatment and fees or both. In 119 instances in which complaints were made because of excessive fees, the charge of the physician was sustained. In 58 complaints (out of a total of 254) the physician adjusted his fee, or canceled his bill entirely to conform to the recommendation of the grievance committee. In one instance a complaint was made because of the persistence of a physician in attempting to collect a fee from his patient for services that were rendered under the Workmen's Compensation Act. In some instances the physicians were reprimanded for lack of cooperation with the committee, and in a few cases referral of the case was made to committees having to do with the investigation of unethical conduct. Among the 254 cases above referred to are included eight inquiries or complaints by insurance companies, five of which had to do with fees. Some of these requested information as to the fairness of a fee.

No mention is made anywhere in this report of abuse in utilizing the services of the committee, despite the fact that 10 of the complainants were frankly psychotics, and in 119 instances the committee found the complaints unjustified or not sustained. It is interesting to note that a psychiatrist has recently been added to the personnel of this committee, seven members now constituting the committee. It is to be noted in connection with this committee's report that approximately 70% of the complaints had to do with fees. It is equally interesting to find that of this number, in about one-third of the instances, either an adjustment was made or the bill was canceled. In neither instance was the size of the adjustment stated, nor the number of cases in which the bill was canceled.

In connection with fees, you will recall that I previously stated that among the grievance committee's functions are those of arbitration and mediation. In its capacity as arbitrator, it should be in a position to determine what is a usual fee or an unusual fee under specific circumstances. I believe the chairman of a local grievance committee in most instances, if the circumstances are made plain to him, should be able and willing to determine the unusualness of a fee or vice versa. If he is unable or unwilling to decide this question himself, the matter would then have to be considered by the whole committee. While grievance committees rightfully will shy at setting a physician's fee for services rendered, there are and will continue to be fees that may seem to be unusual for a specific service. In such instances the committee should be vitally interested in determining whether the fee is unusual or if, under the circumstances, the services were unusual or extraordinary.

My purpose in mentioning this committee's report above is to point out that here is a county medical society committee composed of sincere, serious-minded, busy physicians devoting a large amount of time and effort without compensation to accomplish a worthwhile job for the public and the medical profession. I believe it is representative of the average grievance committee already in existence and functioning throughout the country. I am confident you will find these grievance committees attentive and sympathetic to your inquiries and hope they will be of aid in helping to iron out some of the difficulties encountered in the process of providing better health care throughout the nation.

800 W. 78th St. (20).

CLINICAL NOTES

INDUCTION OF CARDIAC PAIN BY ORALLY GIVEN TOLAZOLINE (PRISCOLINE) HYDROCHLORIDE

John D. Davidson, M.D., Bethesda, Md.

It is not generally appreciated that cardiac pain can be induced by adrenergic blocking agents in patients who have a history of arteriosclerotic heart disease. The precipitation of such pain by orally administered tolazoline (Priscoline) hydrochloride has apparently not heretofore been reported. It is the purpose of this study to present a case in which such a reaction was induced on three separate occasions by orally given tolazoline and once by Dibenzyline (N-phenoxyisopropyl-N-benzyl-β-chloroethylamine hydrochloride) given under relatively controlled conditions. A mechanism whereby this reaction may take place in the absence of changes in pulse or blood pressure is suggested.

Report of a Case

A 65-year-old widow was admitted to the National Heart Institute for evaluation of hypertension of 25 years' duration. She felt well until five years prior to admission, when she experienced an acute depressive episode that necessitated electroconvulsive therapy, after which she made a rapid and uneventful recovery. One year prior to admission she developed intermittent pain of the lower part of the left leg on walking two blocks. This symptom continued essentially unchanged until six months prior to admission, at which time she noted, in addition, the onset of epigastric and substernal aching pain that was usually associated with severe aching of the forearms bilaterally. This pain was precipitated by heavy meals and walking and was promptly relieved by rest and administration of glyceryl trinitrate (nitroglycerin). Four months prior to admission, therapy was begun with whole root extract of Rauwolfia serpentina, moderate sodium restriction, and a reducing diet, which resulted in a 29 lb. (13.2 kg.) weight loss, without change in her symptoms or blood pressure. Her mother, four siblings, and son have high blood pressure.

On admission her blood pressure was 270/140 mm. Hg. Funduscopic examination revealed narrowed and tortuous arterioles, increased arteriolar light reflexes, and arteriovenous nicking. No hemorrhages or exudates were seen. Cardiomegaly was manifested by an apical impulse 14 cm. from the midsternal line. There was a grade 3 high-pitched, blowing systolic murmur at the apex, which was also audible along the left sternal border and transmitted to the base. Diminished dorsalis pedis and posterior tibial pulses were noted bilaterally. Chest roentgenogram and cardiac fluoroscopy revealed moderate left ventricular enlargement, calcification of the aortic knob, and marked elongation and tortuosity of the aorta. The electrocardiogram revealed slight S-T segment depression in leads V_5 and V_6 with upright T waves across the precordium and was interpreted as showing left ventricular strain. Phenolsulfonphthalein excretion was 54% in two hours with 20% excretion in the 15-minute specimen. After administration of amobarbital (Amytal) sodium, the blood pressure fell from 260/160 to 134/92 mm. Hg. Routine urinalysis, serology, hemogram, and blood chemistries, as well as basal metabolic rate and intravenous pyelogram, were within normal limits.

From the Clinic of General Medicine and Experimental Therapeutics, National Heart Institute, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

The patient was exercised on a treadmill at zero grade at 4 mph for six minutes, at which time she developed a cramping pain in the lower part of her left leg. Treatment was begun with administration of 12.5 mg. of tolazoline orally four times a day (fig. 1), and the dose was increased to 50 mg. four times a day by the seventh hospital day. At this time the patient noted severe chest pain even while supine, which was accompanied by marked diaphoresis, apprehension, and increase in pulse rate from 70 to 90 beats per minute. Her blood pressure remained unchanged, and administration of glyceryl trinitrate afforded prompt relief. On the following day, the pain again recurred with greater intensity, but administration of glyceryl trinitrate and carotid sinus pressure with cardiac slowing failed to give satisfactory relief. A repeat electrocardiogram at this time revealed inverted T waves in leads V_4, V_5, and V_6 and was interpreted as representing left ventricular ischemia. On the ninth hospital day, dosage of tolazoline was increased to 100 mg. four times daily and the patient's chest pain became still more severe and required meperidine (Demerol) hydrochloride therapy for relief. Tolazoline therapy was discontinued the morning of the 11th hospital day, and by midafternoon the pain was gone. After five and a half days had elapsed without intervening chest pain, she was given 100 mg. and then 50 mg. of tolazoline under the guise of another

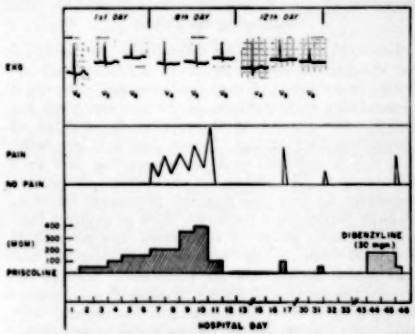

Fig. 1.—Relationship of patient's myocardial pain to time and dose of adrenergic blocking agent and electrocardiographic changes.

medicament. On both occasions typical cardiac pain recurred, with radiation in both forearms, sweating, and increase in pulse rate to 90 beats per minute, and required administration of meperidine for relief. These episodes were separated by two weeks of freedom from chest pain. Exercise on a treadmill in this interim again evoked only leg pain after six minutes at 4 mph, zero grade.

Her subsequent hospital course was uncomplicated until the afternoon of the 44th hospital day, when Dibenzyline was administered in order to see if other adrenergic blocking agents could induce a similar reaction. She received 60 mg. over the next 48 hours, when anginal pain, promptly relieved by glyceryl trinitrate therapy, recurred while she was lying in bed. After several days of being pain-free, she was given azapetine (Ilidar), 300 mg. daily, for several days and then later a 10-mg. intravenous injection of phentolamine (Regitine) methanesulfonate without adverse effect.

Comment

Although the fact that cardiac pain may result from administration of tolazoline is not generally appreciated, there are several references to this relationship in the literature. Grimson[1] regarded as coincidental the development of myocardial infarction in two pa-

tients during therapy with orally and intravenously given tolazoline. Flasher and co-workers [8] studied the electrocardiograms of eight patients with essential hypertension or cardiac disease receiving tolazoline intravenously and reported ST-T wave changes in leads V_5 and V_6. It was presumed that these electrocardiographic changes represented a direct myocardial effect of the drug. A direct effect of this drug on the heart in the absence of changes in circulatory dynamics is supported by the report of Lippmann,[3] who noted anginal pain with abnormal electrocardiographic findings among the side-effects of intra-arterial doses in excess of 20 mg. Prolonged cardiac pain associated with flushing, apprehension, and tachycardia was reported by Sagall and Lewenstein [4] after 35 mg. of tolazoline was injected into the femoral artery of a patient who previously had been given 25 mg. of tolazoline four times daily by mouth without adverse effects. Four days after the injection, an electrocardiogram demonstrated elevation of S-T segments and inverted T waves in leads 1, AVL, V_4, V_5, and V_6, clinically considered to be consistent with an acute myocardial infarction. Prandoni [5] has observed anginal pain lasting from 30 minutes to three hours after injection of tolazoline intra-arterially in two patients who had previous infarctions.

Adrenolytic agents other than tolazoline have also been implicated in the induction of cardiac pain. In a case described by Fremont,[6] severe chest pain occurred during a hypertensive crisis after the intravenous infusions of another imidazoline, piperoxan [2-(1-piperidylmethyl)-1,4-benzodioxan hydrochloride]. Moser and co-workers [7] have reported the occurrence of an ischemic pattern in the electrocardiogram of a patient treated with a haloalkylamine, Dibenzyline. In a study by Miller, Ford, and Moyer,[8] in which experience with Dibenzyline in 32 hypertensive patients is reported, there were 3 patients in whom angina occurred in association with rapid heart action. Gill, Duncan, and Reinhardt [9] treated 21 hypertensive patients with Dibenzyline in doses ranging from 30 to 300 mg. per day and noted definite angina pectoris in 2 patients, while 2 others died with symptoms suggesting myocardial infarction. These investigators also noted tachycardia as a prominent undesirable side-effect of this drug but did not speculate in their report as to the mechanism of the angina in these cases. Cardiac pain after administration of azapetine has been recorded only in association with hypotension, which occurred during intravenous infusion of the drug at the rate of 1 mg. per kilogram of body weight over a 30-minute period. [10]

It is generally accepted that the effective stimulus for what we describe as cardiac pain is a diminished oxygen supply to the myocardium relative to its needs. The most likely mechanisms whereby drugs may induce this situation are (1) hypotension with decreased coronary perfusion pressure, (2) tachycardia sufficient to interfere with coronary filling, (3) direct constriction of coronary vessels, or (4) increase in cardiac work.

It is not apparent from the reports of Lippmann [3] and Sagall [4] whether cardiac pain can be evoked by tolazoline independent of blood pressure or pulse alterations. Neither hypotension nor tachycardia sufficient to evoke pain was found in the case reported here or in those of Flasher and co-workers.[8] The tachycardia that follows administration of adrenolytic substances in mammals is considered to be a reflex response to the fall in blood pressure. This has been demonstrated experimentally with Dibenamine (N,N-dibenzyl-β-chloroethylamine hydrochloride), tolazoline, piperoxan, ergot alkaloids, yohimbine, and Dibenzyline.[11] In the three cases observed by Miller and co-workers,[8] it was assumed that the tachycardia per se rather than hypotension was responsible for the precipitation of coronary insufficiency, because hypotension after administration of hexamethonium is not accompanied by cardiac acceleration and angina is rarely observed under these circumstances. Green [11a] feels that the side-effects of piperoxan hydrochloride, which may

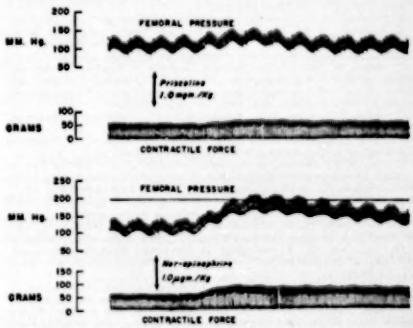

Fig. 2.—Comparison of effect of tolazoline (Priscoline) and arterenol (norepinephrine) on blood pressure and myocardial contractile force of dog.

include substernal oppression, are attributable to a direct stimulation of many types of smooth muscle, including the coronary musculature. Against this as being the underlying mechanism in the case of tolazoline is the fact that this agent potentiates the augmented coronary flow induced by epinephrine.[12]

Experimental Study

The most likely explanation for the development of cardiac pain in the absence of cardiodynamic changes is a sudden increase in the work of a heart already embarrassed by arteriosclerosis or hypertension. By utilizing a strain gauge arch sutured directly into the myocardium,[13] a significant increase in cardiac contractile force was demonstrated after the administration of tolazoline. From figure 2 it can be seen that 1 mg. per kilogram of body weight of tolazoline will increase the contractile force of a dog heart approximately 25%, without significant change in blood pressure. In a heart already near the threshold of supply because of sclerotic vessels, the obligate increase in oxygen need may result in myocardial ischemia.

Summary and Conclusions

Cardiac pain could be induced repeatedly in a patient by oral administration of tolazoline (Priscoline) hydrochloride. This reaction is probably due to a direct myocardial action of the drug and is limited to patients with existing heart disease. Adrenolytic drugs should be used cautiously in patients who have coronary arteriosclerosis, and chest pain developing during the course of therapy for peripheral vascular disease with these agents may be more than fortuitous.

Figure 2 was supplied by Dr. Marion DeV. Cotten.

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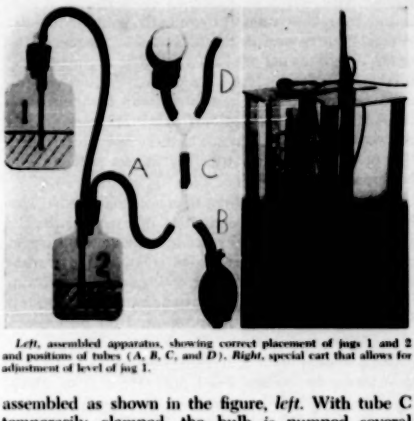
SIMPLE DEVICE FOR MAINTAINING CONSTANT PRESSURE IN SENGSTAKEN ESOPHAGEAL BALLOON

Shannon Brunjes, M.D., Los Angeles

The Sengstaken triple-lumen double-balloon nasogastric tube[1] has been of great value in the emergency therapy of hemorrhage from esophageal varices.[2] However, there has been little mention in the literature of the difficulty in maintaining a constant pressure in the esophageal balloon. A gradual fall in the pressure due to minute air leaks can be decreased by using new rubber tubing, clamping the tube leading to the inflating bulb, and tying all joints. In addition to the problem of leakage of air, there is a constant fluctuation of the esophageal balloon pressure due to changes in the volume of the balloon. These changes are related to changes in position of the patient, variations in intrathoracic pressure, and alterations in the muscle tonus of the esophagus and diaphragm. Even with a special nurse on duty to regulate the pressure constantly by adding or removing air, wide fluctuation in the pressure may take place.

In order to maintain a constant esophageal balloon pressure at any desired level without the necessity for constant adjustment, the following device was adopted, consisting of: two one-gallon jugs, two pieces of glass tubing (i.e., glass drinking straws), two two-hole stoppers to fit the jugs and with glass adaptors, two glass "Y" adaptors, one mercury sphygmomanometer (bulb and manometer—cuff not used), and 10 ft. of rubber tubing.

One jug is filled with water, and then half is poured into the other; it is important that the total amount of water used will fill only one jug. The apparatus is then



Left, assembled apparatus, showing correct placement of jugs 1 and 2 and positions of tubes (*A*, *B*, *C*, and *D*). *Right*, special cart that allows for adjustment of level of jug 1.

assembled as shown in the figure, *left*. With tube C temporarily clamped, the bulb is pumped several times to force water through the siphon tube and prime the siphon. The pressure can then be set at the desired level by raising jug 1 to the required height. Jug 1 must be 5.35 in. above jug 2 for each 10 mm. Hg pressure desired. The device is made ready for use by raising jug 1 to the desired level with tube D temporarily clamped. The manometer is checked to see that the pressure is correct, and tube A is then clamped and the clamp on tube D is removed. After the tube is passed, the stomach washed, the gastric balloon inflated with 150 cc. of air, and the tube pulled up snug in the cardia and fixed, the esophageal balloon is ready to be inflated. Tube D is then attached to the Sengstaken tube esophageal balloon connection with an adaptor. The bulb (on tube B) is removed and replaced with a syringe. This is done so that the volume of air required to raise the pressure in the esophageal balloon to the desired level can be measured. This volume is usually about 100 cc. If it is much greater than this the esophageal balloon is probably bulging into the stomach and should be deflated and repositioned. When tube B is clamped and tube A unclamped the pressure will be automatically regulated. A program of gradual pressure reduction can then be carried out by lowering the upper jug in steps.

Resident in Internal Medicine, Los Angeles County Hospital.

If periodic deflation of the esophageal balloon is desired, this can be done by lowering jug 1 to the same level as the other jug.

Although the pressure is determined by the difference in the level of the water in the two jugs, for simplicity in explaining the apparatus, the level is considered to be constant in the jugs and the pressure is adjusted by raising or lowering jug 1. It should be noted that small jugs are not satisfactory because a small change in the volume of air in the system will produce a large change in the water level and, therefore, in the pressure. In case air accidentally escapes from the system, allowing the level of water in jug 1 to fall, this can be corrected in the following manner. The clamp is moved from tube B to tube D and the bulb is pumped slowly (to avoid excess pressure in jug 2) until the water is returned to the previously marked level. The clamp is then returned to tube B. Although it is possible to use this device by placing one of the jugs on the floor and one on a chair or table, it is more practical to assemble it on a special cart (see figure, *right*) that allows adjustment of the level of the top jug and that makes it available for immediate use as needed. This device has been used on more than a dozen different occasions during a five-month period and has proved quite satisfactory in maintaining a uniform pressure in the Sengstaken esophageal balloon.

Summary

The need for a method of maintaining a constant, but adjustable, pressure in the Sengstaken esophageal balloon instigated the development of a simple device. Although it can be quickly assembled from material available in any hospital, it is desirable to have it assembled on a special cart and available for immediate use. In use, this device has proved quite satisfactory.

1200 N. State St. (33).

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SUCCESSFUL DEFIBRILLATION OF HEART

RESUSCITATIVE PROCEDURE STARTED ON MEDICAL WARD AND COMPLETED IN OPERATING ROOM

Herschel E. Mozen, M.D.
Richard Katzman, M.D.
and
John W. Martin, M.D., Cleveland

In almost all instances of successful defibrillation of the heart the procedure has been carried out in a surgical operating room, where the essential apparatus, supplies, and instruments were readily available. A few exceptions have occurred. These exceptions are sufficiently important to be reported, because they point the way toward the extension of the resuscitative procedure to areas in the hospital that are outside the operating room and possibly to areas that are outside the hospital itself. Two of these exceptional cases have occurred in the University Hospitals of Cleveland. The first [1] was in an ambulatory patient who had angina pectoris. As this patient was leaving the hospital after an electrocardiogram had been taken, he collapsed in what was considered to be a fatal heart attack. He was transported to a nearby operating room, and within minutes the chest was opened. The heart was emptied by hand massage while oxygen was delivered to the lungs. Defibrillation was successfully carried out. At the time of writing, eight months later, the patient, who is a physician, is actively engaged in the practice of medicine. The second of these cases is the subject of this report. Another similar successful defibrillation was carried out by Dr. C. David Brown [2] of Chicago. His patient was an x-ray technician who was developing plates when he collapsed. The chest was immediately opened. The heart was in asystole but fibrillation occurred when manual compression was started. The coordinated heartbeat was restored. The patient recovered completely. Later, an electrocardiogram showed a Wolff-Parkinson-White syndrome. Additional reports of successful resuscitation of patients who developed ventricular fibrillation outside the operating room have been published by Celio,[2A] Southworth and co-workers,[2B] and Reagan and co-workers.[2C]

In each of these instances the patient was in the hospital when fibrillation occurred. Fortuitous circumstances made successful resuscitation possible. The procedure in each case consisted of opening the chest, oxygenating the lungs, circulating the blood by hand massage of the heart, restoring the coordinated rhythm, and closing the chest. The facilities of the operating room were necessary in these cases. In order to extend the scope of resuscitation in cases of sudden ventricular fibrillation, it is desirable to bring together as many experiences as possible so that a course for future action can be charted.

Report of a Case

A 51-year-old female had been treated for two years by one of us (J. W. M.). She had rheumatic heart disease with mitral insufficiency and left ventricular enlargement. Her complaints were excessive fatigue, dyspnea on exertion, and palpitations. Pulmonary rales and peripheral edema were never noted. The eyegrounds were normal. The blood pressure usually was 120/70 mm. Hg. The pulse rate varied between 50 and 90 beats per minute. Frequent premature beats with occasional coupling were noted. Blood and urine studies had been normal. Her vital capacity was 84% of normal. Her basal metabolic rate was +7%. The electrocardiogram showed frequent ventricular premature beats and early left ventricular hypertrophy. The patient had taken 0.1 gm. of digitalis per day for two years. This had been reduced to 0.1 gm. every other day two months prior to admission. She had also taken 0.2 gm. of quinidine four times per day. This did not change the number of premature beats. On the evening of admission, the patient fainted while washing the dishes. There were no convulsions. She was seen by her doctor within 30 minutes. The pulse rate was 30 beats per

From the departments of surgery and medicine, University Hospitals of Cleveland and the Western Reserve University School of Medicine.

minute. The patient was pale. She answered questions but was lethargic. The blood pressure was 120/70 mm. Hg. Respirations were 26 per minute. The neurological examination was normal. She was admitted to the hospital, and an electrocardiogram was taken (fig. 1).

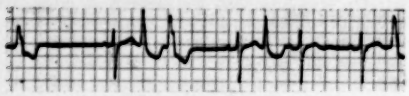

Fig. 1.—Lead V_5 of electrocardiogram taken on Sept. 22, 1955, at 11:20 p. m., showing frequent premature or interpolated ventricular beats.

On the following morning, the patient complained of fatigue. The pulse rate was 44 per minute. There were frequent premature beats. There was no evidence of heart failure. At 3:35 p. m. of the same day, the patient lost consciousness suddenly. She became deeply cyanotic. The blood pressure, pulse, and heartbeat disappeared. Several blows over the precordium failed to stimulate heart action. Two cubic centimeters of 1:1,000 epinephrine solution was injected into the heart. This was followed by the appearance of a sinus rhythm with multiple premature beats. The patient remained unconscious. The attending physician, who was contacted by telephone, ordered the intravenous administration of procainamide. However, while an electrocardiogram was being taken at 3:45 p. m., the rhythm changed abruptly to a persistent ventricular fibrilla-

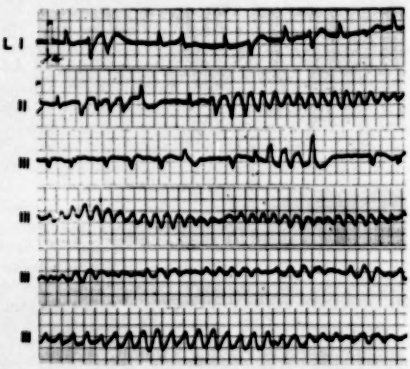

Fig. 2.—Electrocardiogram taken on Sept. 23, 1955, at 3:45 p. m., showing development of ventricular fibrillation. In lead 1 there are multifocal ventricular premature beats, some occurring in succession. In lead 2 a short burst of ventricular tachycardia (4 beats) is present. It is followed by the development of ventricular flutter (rate 300). Lead 3, taken approximately 20 seconds later, shows spontaneous subsidence of ventricular fibrillation and return of multifocal ventricular premature beats and paroxysmal ventricular tachycardia. However, ventricular fibrillation recurred within 12 seconds. Rows 4, 5, and 6 are portions of a continuous record taken during the subsequent 10 minutes. Ventricular fibrillation is persistent.

tion (fig. 2). As a measure of last resort, the chest was opened rapidly through the left fifth intercostal space and manual compression of the heart was started. This was approximately two and a half minutes after the onset of the fibrillation.

Aeration was accomplished by mouth-to-mouth breathing for about 15 minutes. The lungs were then inflated with 100% oxygen through a tight-fitting face mask. With the oxygen system reestablished, i. e., oxygenation of the lungs and hand massage of the heart to circulate the blood, the first step for successful resuscitation was accomplished. The emergency situation was under control, and further plans were made. It was decided to take the patient to the operating room to perform the second step in the resuscitation, i. e., restoring the coordinated beat. The hand massage of the heart and the oxygenation of the lungs were continued throughout the 10 minutes spent in moving the patient through the corridors and up four floors in the elevator to the operating room. The patient was placed on an operating table, and the chest incision was draped. Defibrillation was then easily carried out with the application of a single electric shock. This was done through the intact pericardium. The time interval between the onset of fibrillation and the restoration of a coordinated heartbeat was 30 minutes. The heart was observed for one hour after the establishment of a regular beat. Since the heart continued to beat normally during this period and a good blood pressure level was maintained, a drainage tube was inserted into the pleural cavity and the chest was closed. A tracheotomy also was performed.

After the resuscitation, the patient was kept in a humidified oxygen tent for several days. She received vasopressor drugs for a few hours. She responded intelligently to questions that

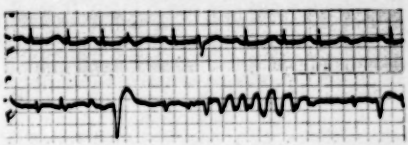

Fig. 3.—*Top*, electrocardiogram (lead aVF) taken on Sept. 24, 1955, 24 hours after defibrillation of the heart; sinus tachycardia (rate 100), frequent multifocal ventricular premature beats, and quinidine effect are present. *Bottom*, electrocardiogram (lead aVF) taken on Sept. 28, 1955, 5 days after defibrillation, showing ventricular premature beats and paroxysmal ventricular tachycardia.

same evening. During the following few days, she had some lapses of memory but there were no gross neurological changes. The patient received procainamide for 22 days after the resuscitation. This was given intravenously for the first three days, in doses of 300 mg. every three hours. From the 3rd to 15th days, it was given orally in doses of 250 mg. every four hours. For the last seven days, it was given in doses of 500 mg. four times per day. She also received isoproterenol (Isuprel) hydrochloride sublingually for seven days. Large doses of antibiotics were administered for two weeks after the resuscitation.

The patient's recovery was uneventful except for minor complications. The chest incision healed per primum. There was evidence of a mild pericarditis during the second postoperative week. There was also thrombophlebitis of the legs. This was treated satisfactorily with anticoagulants. The patient's general condition gradually improved. There were progressive changes

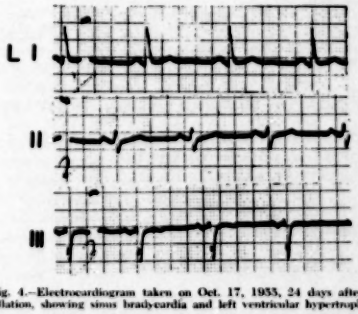

Fig. 4.—Electrocardiogram taken on Oct. 17, 1955, 24 days after defibrillation, showing sinus bradycardia and left ventricular hypertrophy.

in the electrocardiograms, with the eventual appearance of a regular sinus rhythm (fig. 3 and 4). Five weeks after the reversal of a fatal arrhythmia, the patient walked out of the hospital. She had no evidence of brain damage, and her heart was beating regularly.

Requirements for Successful Resuscitation

In order to carry out a successful resuscitation, several things are necessary. The first is a proper understanding of the resuscitative technique.[3] This understanding can be achieved only when the procedure is divided into its two separate and distinct steps. The first step is to reestablish the oxygen system. This means that oxygen must be delivered to the lungs (this is done best through an endotracheal tube attached to a rubber bag full of oxygen) and that the oxygenated blood must be circulated by hand massage of the heart. This first step is the emergency act and must be accomplished quickly in order to preserve the viability of the sensitive brain cells. The equipment needed to perform this first step is simple and easily obtainable. An instrument to open the chest and some method to deliver oxygen to the lungs are all that is necessary. When the oxygen system has been reestablished, the emergency is over. The second step in the resuscitation may be performed in a leisurely fashion.

The second step in resuscitation is the restoration of the coordinated heartbeat. If the heart is in asystole, this may be readily accomplished by compression alone or by intracardiac administration of epinephrine combined with hand massage of the heart. If fibrillation is occurring, the second step may be more difficult. A defibrillator is necessary to deliver the proper electric shock to the heart.[4] In addition, various drugs may also be needed.

Besides a thorough understanding of the resuscitative technique, several other things are needed. A rib spreader should be used to keep the ribs away from the wrist of the surgeon in order to prevent excessive fatigue during the cardiac massage. The necessity of a defibrillator has been previously mentioned. Sterile linen is needed to drape the chest incision. Absorbable sutures and surgical instruments are needed to close the chest. At the present time, the operating room is the only place where all of this equipment is readily available.

Future of Resuscitation

It is obvious that new possibilities for successful resuscitation are being created. In both of the successful cases in this hospital, the previous general attitude would probably have been to discourage the attempt at resuscitation. There is scarcely a cardiologist who would attempt it in the presence of coronary artery disease. The same can be said of the case reported here. But they were successful, and experience must point the way for future action. It is hardly possible to discuss the applicability of resuscitation. There are no rigid definitions of conditions that must prevail in order to attempt resuscitation. There are instances in which success in resuscitation is impossible, and in some cases success is even undesirable. Such cases would be those in which irreversible brain damage may have occurred or those in which incurable disease may be present.

Whether resuscitation by direct handling of the heart can be extended beyond the hospital is a problem that will receive future consideration. It may even become a debatable subject. There can be but little doubt that the "death factor" may be reversible in many people who fall over dead with a fatal heart attack. In many of these cases, the heart is an anatomically good organ that ought to be able to continue beating. In these cases, the coordinated beat is destroyed by electric currents that accumulate in the heart and, when strong enough, cause fibrillation. Under favorable circumstances, the heart could be given a "second chance to beat" and some of these people might be saved. Several questions should be asked. How often is successful resuscitation possible in patients with fatal heart attacks? In what other conditions is success possible? In what conditions should resuscitation not be attempted? What are the requirements for success? Can these requirements be met outside the hospital? Can the procedure be simplified so that it becomes unnecessary to open the chest? What safeguards must be taken to prevent unjustified resuscitative attempts? What will be the situation of resuscitation in 25 years? These questions deserve consideration. Correct answers to these questions are not possible at the present time. In order to determine these answers, further experiences are necessary.

2065 Adelbert Rd. (16) (Dr. Mozen).

Dr. Claude S. Beck helped during the resuscitation and in the preparation of this report.
Dr. Herman K. Hellerstein analyzed the electrocardiograms.

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SELENIUM SULFIDE IN TREATMENT OF PITYRIASIS VERSICOLOR

Harry M. Robinson Jr., M.D.
and
Stanley N. Yaffe, M.D., Baltimore

Pityriasis versicolor is a benign, noncontagious, superficial fungus infection of the skin caused by Malassezia furfur. The characteristic macular eruption usually appears on the upper trunk and shoulders, although it may involve other parts of the body. The color of the lesions may be pink, fawn colored, light

From the Division of Dermatology, Department of Medicine, School of Medicine, University of Maryland and the University Hospital.

brown, or whitish. Both discrete and confluent areas are commonly seen in the same patients. Gentle scraping of the surface produces a fine furfuraceous scale from which the diagnosis of pityriasis versicolor is established by demonstration of the presence of filaments and spores of Malassezia furfur in the scrapings. Microscopic identification of the causative organism is accomplished by examination of a wet potassium hydroxide perparation or by the use of the ink-potassium hydroxide stain.[1] The condition is most commonly observed during the summer months, but many cases are also seen during the cooler months of the year. Subjective symptoms are usually absent, but some patients complain of mild itching, particularly when profuse sweating occurs.

In spite of the fact that this condition was first described over 100 years ago, no regimen of therapy has been devised to provide uniformly satisfactory results. Among those remedies that have been employed with some success in the treatment of pityriasis versicolor are sulfur, salicylic acid, a combination of sulfur and salicylic acid, resorcinol (resorcin) alone and in combination with other drugs, naphthol, saturated solution of sodium thiosulfate (sodium hyposulfite) benzoic and salicylic acid (Whitfield's) ointment, tincture of iodine, chrysarobin ointment, mercury bichloride, sulfuric acid, mild mercurous chloride (calomel) ointment, pyrogallol, tar, and turpentine. These drugs or combinations of drugs have been partially effective, ineffective, or sensitizing in the vast majority of patients treated.

Method of Study

Preparation Used.—A water-miscible ointment base containing a 1% solution of selenium sulfide was dispensed in 1-oz. tubes to the patients under treatment. The preparation has a pale orange-yellow color. No discoloration of the treated area was evident when a thin film of the ointment was applied to the skin. The application of a 1% solution of selenium sulfide cream to the skin is not productive of any unpleasant subjective symptoms.

Case Selection.—The patients included in this study were all ambulatory and were obtained from the dermatology outpatient department of the University Hospital and from our private practices. There were 9 Negro males, 4 Negro females, 7 white females, and 12 white males included in this study, a total of 32 patients who ranged in age from 13 to 57 years. In all instances the diagnosis of pityriasis versicolor was established by a microscopic study of ink-potassium hydroxide preparations.

Treatment Routine.—All patients were advised to initiate treatment by taking a shower with warm soapy water, thoroughly rinsing the skin to remove all traces of the soap, and then patting the skin dry with a towel. Towels and all clothing worn next to the skin were to be thoroughly laundered and dried before reusing them. Following the bath, the patient was instructed to lightly massage a thin film of the ointment into all of the involved areas twice daily. The bath is to be repeated every three days. At the end of one week of this treatment, the patient reported to the physician for further observation. Instructions were given each patient to have some assistance at home in applying the medicament so that all of the areas would be treated. The routine was repeated for a second week and then discontinued.

Results of Treatment

The results reported in this study represent a minimum post-treatment observation period of one year in all of these patients. Two of the Negro males and two of the Negro females who obtained an initial satisfactory result did not report for the more recent post-treatment examinations; however, at the end of a three-month period all of these patients had retained satisfactory results. Involution of lesions with no recurrence was observed in all of the other patients treated. No adverse reactions were encountered.

Summary and Conclusions

Thirty-two patients with pityriasis versicolor were treated with a 1% solution of selenium sulfide in a water-miscible ointment base. Involution of lesions occurred in 28 patients, and no recurrence of the eruption was noted after one year. These results indicate that a 1% solution of selenium sulfide ointment is an efficacious method of treatment for pityriasis versicolor. It is clean, nonirritating, and effective. No adverse reactions were encountered in this study.

Lombard and Green streets (1) (Dr. Robinson).

This study was supported by a grant-in-aid from the Abbott Laboratories, North Chicago, Ill. The selenium sulfide ointment was furnished by Dr. George Berryman of Abbott Laboratories.

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Diabetic Coma—Simple Test for Acetone.—The trend of diagnostic procedures and those to aid in guiding therapy is toward greater complexity. There is a tendency also to disregard simple measures in favor of the more complex even though the simple measure may be more widely applicable and foolproof. A simple test for acetone in the plasma as a diagnostic procedure in detecting diabetic coma and as a measure in guiding the therapy is a case in point. The test is easy to perform, requires a minimum amount of apparatus, gives easily reproducible results and is of assistance in assessing both the severity of the ketosis and the response to therapy. Hence, it is a valuable guide to insulin therapy. Determinations of the blood sugar and carbon dioxide combining power are not always reliable; they may needlessly sacrifice precious time, and under some circumstances they do not reflect either the degree of ketosis or the response to therapy. Also, the degree of ketonuria is likely to mislead. It is not a sufficient guide since strongly positive reactions for ketonuria may continue to occur during the course of treatment until the blood is almost completely cleared of excess ketone bodies. If ketonuria were used as a guide, overtreatment with insulin would be probable. However, an easy adaptation of the routine test for acetone in the urine permits this test to be used on the blood plasma to detect the presence of and degree of ketonemia. This information is of utmost value.—Charles T. Lee and Garfield G. Duncan, Diabetic Coma: The Value of a Simple Test for Acetone in the Plasma—An Aid to Diagnosis and Treatment, *Metabolism—Clinical and Experimental*, March, 1956.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. KAUTZ, M.D., *Secretary.*

Poliomyelitis Vaccine.—A formaldehyde-inactivated vaccine containing approximately equal parts of aqueous suspensions of individually tissue-cultured type 1, type 2, and type 3 strains of poliomyelitis virus approved by the National Institutes of Health. The vaccine is tested for antigenic potency and for nonviability of component viruses in accordance with requirements promulgated by the National Institutes of Health.

Actions and Uses.—Poliomyelitis vaccine is used to induce artificial active immunity against paralytic poliomyelitis on the basis of its ability to stimulate the production of protective levels of antibodies in susceptible animals and in man. Observations on the protective effect of the vaccine as currently prepared are thus far inadequate to make it possible to reach final conclusions regarding the extent or duration of immunity that can be expected from its use. Its protective effect against nonparalytic forms of poliomyelitis infection and its influence upon the subsequent acquisition of natural immunity to the disease also have not been elucidated. Prior clinical trial with a similar preparation in school children of the most susceptible age group and epidemiological observations on the effect of the 1955 preparations suggest that the vaccine is capable of reducing the incidence of paralytic poliomyelitis by approximately 60 to 80%.

Poliomyelitis vaccine is as safe and as effective as can reasonably be expected. If possible, it is advisable to complete inoculations prior to the expected seasonal increase in the incidence of the disease. The presence of acute poliomyelitis in a community is not considered a contraindication to use of the vaccine in presumably unexposed but susceptible individuals; however, on the basis of present knowledge, it seems inadvisable to inoculate family contacts. Experience so far has not indicated that there is a provocative effect from inoculation with the vaccine.

Poliomyelitis vaccine should be employed with the usual precautions for vaccines in general. Local and systemic reactions after inoculation of the vaccine generally are mild and infrequent. General malaise and low-grade fever of short duration may be observed occasionally. The presence of small amounts of penicillin and streptomycin in the vaccine has not been associated with severe allergic reactions, except possibly in rare instances. So far, allergic reactions have been of a minor nature, and even inoculated subjects with known sensitivity to these antibiotics usually have not reacted adversely. In highly allergic persons, a test dose of the vaccine may be injected intradermally so that the effect can be observed before administration of the usual dose is attempted. The elimination of penicillin and streptomycin or its derivatives from the current preparation is advised by some authorities to eliminate the possibility that its use may sensitize some individuals; others feel that the amounts present in the vaccine are too small to be of significance and are no greater than the amounts found in milk from cows fed with antibiotics. The theoretical possibilities that the vaccine might be capable of inducing the formation of harmful Rh, kidney tissue, and animal serum antibodies so far have not been realized. The vaccine also has not been associated with other toxic reactions or neurological sequelae such as polyneuritis, radiculitis, and encephalopathy. While these are theoretically possible, poliomyelitis vaccine contains less protein than other vaccines in use and is not considered to involve any greater potential risk from this standpoint.

It should be apparent from the relatively short period of time over which the vaccine has been developed and used, as compared to established immunologic agents effective in the prevention of other infections, that its ultimate usefulness can be determined only after longer experience has been gained. Physicians and health officers should be alert to the need for confirmatory laboratory findings in the diagnosis of doubtful cases of poliomyelitis to insure accurate reporting of cases and correct interpretation of the effect of the vaccine. Careful observations of all previously inoculated subjects will speed the accumulation of knowledge essential for the further evaluation of the vaccine. These might well include records of lot numbers of the vaccine used, sites of injection employed, the exact course of weakness or paralysis, and other details of confirmatory findings should poliomyelitis occur in inoculated subjects.

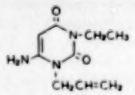
Dosage.—Poliomyelitis vaccine is injected subcutaneously or intramuscularly. Intradermal injection has not been sufficiently studied to justify that method of inoculation. Primary vaccination as currently suggested consists of two 1-cc. doses spaced at an interval of two or preferably four to six weeks and a third dose of 1 cc. not less than seven months after the second. Until more is known about the duration of the effect of the vaccine, the need for follow-up inoculations cannot be definitely determined.

The vaccine should be stored at a temperature between 2 and 10 C, preferably at 2 C, but should not be allowed to freeze. Changes in color of the vaccine under these conditions do not appear to alter its initial potency and safety. It should not be used if there is any evidence of turbidity.

Preparations for use as stated for the foregoing drug are marketed under the following name: Poliomyelitis Vaccine.

Eli Lilly and Company; Pitman-Moore Company, Division of Allied Laboratories, Inc.; Merck Sharp & Dohme, Division of Merck & Co., Inc.; Wyeth Laboratories, Division of American Home Products Corporation; Public Health Service, U. S. Department of Health, Education and Welfare; Dr. Jonas E. Salk; and Dr. Herbert Ratner cooperated by furnishing scientific data to aid in the evaluation of poliomyelitis vaccine.

Aminometradine.—1-Allyl-3-ethyl-6-aminotetrahydropyrimidinedione.—The structural formula of aminometradine may be represented as follows:



Actions and Uses.—Aminometradine, a synthetic uracil derivative, produces an increased flow of urine after oral administration. Its precise mode of action is not clear but is believed to be that of inhibiting the reabsorption of sodium ions by the renal tubule; potassium excretion is slight and variable. The drug does not affect carbonic anhydrase or succinic dehydrogenase and appears to have no significant effects on renal blood flow or glomerular filtration rate. In contrast to acetazolamide or the mercurial diuretics, aminometradine does not alter urinary pH nor does it cause significant changes in the systemic acid-base balance. Like acetazolamide and the xanthines, however, the drug has only minimal diuretic effects in normal, nonedematous individuals.

Aminometradine is an effective agent for the treatment of edema in patients with congestive heart failure. In mild to moderate cases, the drug may be used to initiate diuresis and subsequently to maintain an edema-free state. It is sometimes effective in producing diuresis in these patients when the organic mercurials fail. Conversely, other patients may respond well to the mercurials but not to aminometradine. There is suggestive evidence that the drug is most effective in patients with elevated serum sodium levels; its judicious use has sometimes reduced or eliminated entirely the need for mercurial diuretics.

Patients with severe cardiac decompensation and attending ascites, pulmonary edema, orthopnea, or dyspnea usually do not respond well to initial therapy with aminometradine. In such cases, rapid mobilization of edema fluid can best be achieved by paracentesis and/or administration of the mercurials. Once the acute congestive failure has been compensated, however, it is frequently possible to keep such patients in an edema-free state by the administration of maintenance doses of aminometradine. Regardless of the severity of congestive heart failure, the diuretic should be administered as an adjunct to and not as a substitute for other forms of therapy such as cardiac glycosides and a low-sodium diet.

Although the most satisfactory results with aminometradine have occurred in patients with congestive heart failure, the drug has also been of value in certain other conditions characterized by edema. Thus, in some patients with cirrhosis of the liver or the nephrotic syndrome, its administration may produce a moderate diuresis. In some patients with cirrhosis, this may be sufficient to eliminate or at least curtail the need for mercurials. There is also some preliminary evidence that aminometradine may be useful for the treatment of edema associated with the administration of adrenal cortical steroids and phenylbutazone. Sufficient valid evidence is lacking, however, of the drug's usefulness in toxemia of pregnancy or premenstrual tension.

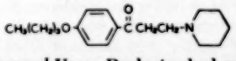
Aminometradine has not so far been reported as causing serious toxic effects, and there are no known contraindications to its use. Although its metabolic fate is imperfectly understood, it appears to be a relatively safe agent for use in the presence of severe cardiac, hepatic, or renal damage. Minor side-effects are common; nausea and vomiting occur in about 20 to 30% of the patients to whom it is administered. Rarely, these may be of sufficient severity to necessitate discontinuation of therapy or reduction of dosage below effective levels. Other side-effects such as anorexia, headache, and diarrhea are infrequent and mild.

Dosage.—Aminometradine is administered orally. Dosage must be determined individually according to the severity of the edema. For the initiation of diuresis or for maintenance therapy in adults and children, the daily requirement ranges from 0.2 to 0.8 gm. In an effort to minimize gastric disturbances, this amount is administered on an interrupted dosage schedule. This may be accomplished either by administration of 0.2 to 0.8 gm. every other day in divided doses during meals or by administration of this amount in divided dosage during meals for three consecutive days and then complete omission on the following four days.

Preparations for use as stated for the foregoing drug are marketed under the following name: Mictine.

G. D. Searle & Co. cooperated by furnishing scientific data to aid in the evaluation of aminometradine.

Dyclonine Hydrochloride.—4'-Butoxy-3-piperidinopropiophenone hydrochloride.—The structural formula of dyclonine hydrochloride may be represented as follows:



Actions and Uses.—Dyclonine hydrochloride, a topical anesthetic agent, differs from most drugs of this pharmacological class in that it does not contain the ester or amide linkage typical of compounds such as procaine. Its systemic toxicity is low; in man and experimental animals, relatively large oral or intravenous doses produce little alteration in respiration, blood pressure, or pulse. No changes referable to inhibition of the parasympathetic nervous system are discernible. The drug also has antimicrobial properties; however, since this action has been established only by in vitro tests, its possible clinical significance is undetermined at present.

Dyclonine hydrochloride is usually an effective anesthetic agent when applied topically to the skin or mucous membranes. The onset of action is rapid, and the intensity and duration of anesthesia compares favorably to that of compounds of the procaine type. The drug is useful in dermatological practice for the treat-

ment of skin conditions in which relief of pain and pruritus is desired. It also may be used for the symptomatic treatment of minor burns and minor trauma, for relief of postoperative discomfort such as occurs after episiotomy, and for symptomatic management of pruritus ani or vulvae. The drug also has been used to anesthetize mucous membranes prior to instrumentation, as for example, before laryngoscopy, bronchoscopy, esophagoscopy, proctoscopy, and systoscopy. When instilled into the conjunctiva, it affords anesthesia without producing miosis or mydriasis.

Although longer clinical experience is necessary to determine its ultimate potentiality as an allergen, at present there are no reports of true sensitization or hypersensitivity to dyclonine hydrochloride. Likewise, the drug has not produced cross sensitization with other local anesthetic agents, a characteristic that may be the result of the differences in chemical structure. To date, irritation at the site of local application has been the only significant side-effect to its administration. Despite its low systemic toxicity, sufficient evidence is at hand to justify its use only by topical application.

Dosage.—Dyclonine hydrochloride is administered topically in a 1% concentration in a vanishing cream base or as a 0.5% aqueous solution. It is applied as necessary to the skin or mucous membranes in amounts necessary to cover the painful or pruritic surfaces.

Preparations for use as stated for the foregoing drug are marketed under the following name: Dyclone.

Pitman-Moore Company, Division of Allied Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of dyclonine hydrochloride.

Intravenous Use of Gitalin (Amorphous)

The Council has evaluated the usefulness of gitalin (amorphous) by the intravenous route. On the basis of currently available evidence, the Council concluded that the intravenous injection of this glycoside preparation is useful for the rapid digitalization of adult patients in whom the oral route is not feasible, especially those with acute, congestive cardiac decompensation. The average initial dose by this route is 2.5 mg. twice in 24 hours. The usual total digitalizing dose is about 5 to 6 mg. After full digitalization, when maintenance by the parenteral route is indicated, intravenous administration of doses as high as 2.5 mg. twice weekly have been used, although intravenous injection of 0.5 mg. daily may be adequate. However, oral maintenance therapy of 0.5 mg. daily should be substituted as soon as possible. Intravenous administration should be done with caution and in reduced dosage if the patient has received other digitalis drugs within the previous 2 weeks.

The Council voted to amend New and Nonofficial Remedies accordingly to describe this additional route of administration.

White Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of the intravenous use of gitalin (amorphous).

Use of Immune Globulins for the Treatment of Agammaglobulinemia or Hypogammaglobulinemia

The Council was requested to evaluate the usefulness of poliomyelitis immune globulin (human) for the treatment of agammaglobulinemia or hypogammaglobulinemia. This syndrome, which may occur in both adults and children, is characterized by an acquired or congenital absence or deficiency of gamma globulin, the serum fraction that contains most of the antibodies. A diagnosis of agammaglobulinemia or hypogammaglobulinemia may be entertained on the basis of repeated bacterial infections, the absence of isohemagglutinins, and a comparative inability of antibiotics to combat these infections. Confirmation may be obtained by determination of the serum gamma globulin level. In such cases it appears logical, therefore, to attempt to control clinical symptoms by the administration of compatible, but exogenous, immune gamma globulin. On the basis of currently available evidence, the Council concluded that routine "replacement" therapy with poliomyelitis immune globulin (human) is useful for the treatment of this syndrome. The immunity thus provided is temporary and passive; continued protection depends on routine and regular administration of the immune globulin. Although data were considered on poliomyelitis immune globulin (human) only, the Council was aware that the older preparation, immune serum globulin, is equally effective for the treatment of patients with this condition. The Council further concluded that, insofar as the other serum antibodies are concerned, poliomyelitis immune globulin (human) is equivalent to immune serum globulin and that both preparations can be used interchangeably in patients with agammaglobulinemia or hypogammaglobulinemia. For this purpose the preparations are administered by deep intramuscular injection, preferably in the gluteus. No arbitrary dosage schedule has as yet been determined. Judicious management of dosage should be on an individual basis with an attempt to determine for each patient the lowest dose required for his protection. Likewise, the interval between injections must be individually determined. Factors such as the age and weight of the patient, his general state of health, and the bacterial and viral antigens to which he has been exposed should be taken into consideration. As a general pattern, monthly injections of 30 to 50 cc. for adults and 20 to 40 cc. for children may be given; however, it is possible that doses much smaller than these may be adequate with less discomfort to the patient.

The Council voted to amend New and Nonofficial Remedies accordingly to describe the use of poliomyelitis immune globulin (human) and immune serum globulin for the treatment of agammaglobulinemia and hypogammaglobulinemia.

Merck Sharp & Dohme, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of the usefulness of poliomyelitis immune globulin (human) for the treatment of agammaglobulinemia or hypogammaglobulinemia.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
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Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . . "Medic, Chicago"

EPILEPSY AND THE EPILEPTIC

GUEST EDITORIAL

William G. Lennox, M.D.

The frontiers of epilepsy are many: the anatomy, physiology, and chemistry of the brain; psychology and psychiatry; pharmacology, sociology, and legal medicine; and the broad borderland of human relations. On each of these fronts some advance is being made. For example, the World Health Organization sponsored a six-day conference in London last October devoted to a discussion of juvenile epilepsy as a problem in public health. Broadly considered, any illness that affects a significant segment of the population, and that may yield to well-directed effort, deserves that resources be pooled for its prevention and control. In the past, public health efforts have been centered on the epidemiology and control of infectious disease. The phenomenal success that has resulted should release efforts for the control of other forms of serious illness. One of these, emphasized by the London conference, is epilepsy. This conference was attended by experts on the subject drawn from eight different countries. The findings will be issued from Geneva. Aside from recognition by the World Health Organization, three principal areas of progress may be outlined. The first, physiology, concerns epilepsy, the disorder. The second and third, therapeutics and social-psychological, concern the epileptic, the person.

The brain is the master organ of the body. Other organs may become diseased and the individual suffers; one disordered brain may disrupt a community, or nation. Yet, study and understanding of the brain has lagged far behind that of other organs. Its inaccessibility and complexity have awed the physician; the sad consequence of any dysfunction has frightened the people. How else can the public neglect of the brain as compared with, for example, the heart or even the joints be explained?

Twenty-seven years ago Berger breached the bony bastion that surrounds the brain by demonstrating that its electrical potentials, when led off from the scalp, would write a record of cerebral activity. This discovery has released epilepsy from the crypt of the unknown. "Cryptogenic" is now an outmoded term. Epilepsy is simply a paroxysmal dysrhythmia of brain potentials. Unless complicated by some cerebral lesion, this dysrhythmia, epilepsy, is based on some peculiarity in the metabolism of brain cells. Hence, epilepsy is a metabolic disease, comparable, for example, to diabetes. The student of epilepsy is especially favored, because the brain-wave pattern, when not distorted by some acquired brain lesion, is a hereditary trait. One study includes electroencephalograms and intelligence tests of 225 twin pairs affected by seizures. The relative influence of heredity and of acquired conditions in the cause of seizures and of mental retardation is thereby weighed. Identical twins, without acquired brain injury, have a high concordance not only of epilepsy but of a certain type of seizure and of a certain pattern of electroencephalographic abnormality.

Epilepsy has been the chief beneficiary of electroencephalography, but the technique is now an important tool for that most important of all tasks, an understanding of the working of the human brain and, hopefully, how dysfunction may be corrected. Present interest in both epilepsy and the science of brain function centers in the temporal lobe and its communicating structures. Seizures indigenous to this area are varied and bizarre, causing hallucinations of smell or taste; peculiar dream-like states; vivid pseudomemory of places or events; and automatic behavior that ranges from the ludicrous to the antisocial, with amnesia for what occurred. A display of spikes in the electroencephalogram made during sleep points to the temporal lobe as the responsible area. Because associated seizures (broadly termed psychomotor) respond poorly to anticonvulsant drugs, excision of the epileptogenic area offers a possible means of drastic relief. A thoroughgoing analysis of present-day knowledge of the brain in relation to psychomotor epilepsy is being made by a panel of experts from various countries. These will meet successively in Marseilles and in Washington, D. C., and, finally, in 1957, will meet in Brussels. The last session will be with the international congress of the League Against Epilepsy, of which Prof. A. Earl Walker is president.

The key to the mechanism of uncomplicated epilepsy is marked neurochemistry, and not neuropathology or neurophysiology. Slices of the cortex of the human brain that emit seizure discharges have proved to be defective with respect to acetylcholine, glutamic acid, potassium, and energy systems. The addition of L-glutamine or L-asparagine to such slices corrects these defects. Although in vitro studies require clinical confirmation, observations such as these may be a crack in the door that hides the secret of abnormal neuronal function in epilepsy.

The second area of progress, therapeutics, is the most important for the immediate prospects of the person subject to seizures. Success has been commensurate with that attained with the antibiotics against infections. Physicians now have half a dozen drugs variously effective in the control of convulsions and psychomotor seizures and another half-dozen useful in control of the petit mal seizures of childhood. By skillful use of medicines, alone or in combination, the majority of patients can be relieved of a majority of

From the Seizure Division of the Children's Medical Center, Boston 15.

their seizures and a substantial number indefinitely rid of them. Nor is therapy only with drugs. With the aid of electrodes planted on, or even below, the cortex, epileptogenic foci, especially those from the brain surface, can be removed with minimal impairment of the functioning of body or mind.

The third area of treatment, social-psychological, is as important to the patient as the other two, but progress has been less real. Because of the stigma of seizures, the epileptic, though rid of his attacks, may encounter social and psychological barriers to satisfactory living. Among repressive laws, those that bar marriage are most archaic. Largely through the efforts of doctors, laws that forbid marriage have been recently rescinded or amended in 3 states, but they remain in 16.

A second and more controversial question concerns the licensing of persons to drive motor vehicles. Provisions vary greatly from state to state. For some, epilepsy is a reportable disease. Some states rule against use of anticonvulsant medication. The application blanks of most states ask specifically about epilepsy, but avoid mention of the use of alcohol. How do the fatality records compare? In Massachusetts each case is judged on its individual merits, with heavy dependence on the recommendation of physicians experienced in the treatment of epilepsy. During the last three years epilepsy caused not a single death and less than 1% of all accidents, whereas fatalities because of alcohol numbered 265. A number of factors enter into a physician's recommendation: the interval of time since the last seizure (at least 18 months); the age at onset of seizures and the former type and frequency of these; the constancy and the duration of the warning aura; the time of seizures, whether they occur only at night; the degree of abnormality of the electroencephalogram; the person's veracity and sobriety; the person's adherance to prescribed treatment; and the amount and kind of the expected driving.

A third and even larger problem is that of employment. Epileptics have been excluded from employment because of general prejudice and fear of a high accident rate, a fear that is unjustified if there is proper job placement. But how is proper job placement possible if admission of a history of seizures is an automatic bar to employment? Enactment of a workable second injury clause would seem to lessen this handicap.

With the aid of a grant from the U. S. Public Health Service, the physicians' League Against Epilepsy has sponsored a survey of state laws with respect to marriage, drivers' licenses, and employment of epileptics. Roscoe L. Barrow, dean of the University of Cincinnati School of Law, and Dr. Howard D. Fabing have written a book entitled "Epilepsy and the Law."[1] Increased public understanding, acceptance, and active assistance of the epileptic proceeds at too slow a pace. As emphasized by the current motion picture "The Dark Wave," patients or their relatives are loath to join public efforts in their own behalf. A glowing exception is the account of her own illness by the English author Margiad Evans.[2] In terms of number of dollars or hours expended, therapeutic results are far greater for epilepsy than for most neurological disorders. Yet, public interest and support of the large body of epileptics has been relatively meager. Through the journal *Epilepsia* and a growing number of medical articles and books, clinicians have access to present-day knowledge of epilepsy and of the means of its control. The physician should also help to remove the attendant social and psychological impediments to useful living. The epileptic is not a muscle-nerve preparation, dissected out of a frog for experiments in pharmacology. Prescription of medicine is but half the treatment. Laboratory and pharmaceutical research have lifted epilepsy out of the dark ages. With the practitioner of medicine rests the opportunity and the responsibility for quickened progress in the area of human relations.

W. M. A. MEETING IN CUBA

Within a matter of weeks physicians from over the world will meet in Havana, Cuba, to attend the 10th Annual Assembly of the World Medical Association. Those who know this delightful Caribbean country will need no second invitation to plan for the pleasures that accompany meetings of the World Medical Association, and those who want firsthand accounts of what is transpiring in medical practice in other countries can find no better meeting to satisfy their curiosity. Dr. Louis H. Bauer, secretary general of the association, has mailed to delegates from national medical associations the program for the meeting. It offers a diet for all doctors genuinely interested in medical practice. Those physicians who have not completed plans for attendance should do so now, before it is too late. Details will be supplied gladly by Dr. Louis H. Bauer, Secretary General, World Medical Association, 10 Columbus Circle, New York 19.

The date of the meeting is October 9-15. Included in the program for the Assembly are a variety of topics on problems facing physicians and their patients and the experiences of doctors from among the 50 or more national medical associations that make up the World Medical Association. Also included is a session of scientific papers to be formally presented by leading physicians in Cuba. Of interest to medical editors will be the half-day program featuring Pan-American medical publication problems with discussants from Germany, Japan, Luxembourg, Finland, and elsewhere. This, however, only suggests the breadth of the topics that will be explored, as the thoughts expressed in the discussions that follow the reports often are as revealing as the reports.

Wives of physicians attending the Assembly will be pleased with the social and entertainment program arranged for their enjoyment. As for the renowned hospitality of the physicians of Cuba, words are not necessary for those who have been guests of Cuban physicians. Add thoughts of this to the climate, the beaches, the countryside, and other attractions and the future is appealing for the visitors to this 10th annual meeting of the World Medical Association.

1. Barrow, R. L., and Fabing, H. D.: Epilepsy and the Law: A Proposal for Legal Reform in the Light of Medical Progress, New York, Paul B. Hoeber, Inc., 1956.
2. Evans, M.: A Ray of Darkness, New York, Roy Publishers, 1953.

ORGANIZATION SECTION

JOURNAL INDEX

The index to volume 161 of THE JOURNAL appears in this issue. Those who wish extra copies of the index may receive them without charge on request to the Order Department, American Medical Association, 535 N. Dearborn St., Chicago 10.

TWO ADDITIONS TO A. M. A. STAFF

Philip L. White, B.S., M.S., D.Sc., who has been with the department of nutrition of the Harvard School of Public Health for a number of years, is the new Secretary of the A. M. A. Council on Foods and Nutrition, and Wallace Wesley, B.Ed., M.S., Hs.D., has been appointed consultant in health and fitness in the A. M. A. Bureau of Health Education.

Dr. White will take over his new job on Sept. 1. In 1951, he served as nutrition advisor to the department of nutrition of the Peruvian Ministry of Public Health. His publications in this field include reports of dietary surveys conducted on the coast, in the jungle, and in the high sierras of Peru; a table of the composition of Peruvian foods; a study of the necessity of amino acid supplementation of all-vegetable diets in human nutrition; reports on the nutritive value of some Peruvian seed products; and the iron requirement of children infested with intestinal parasites. On returning to Harvard, he did research in experimental atherosclerosis and on protein metabolism. Last winter, Dr. White was a member of the U. S. team that conducted a nutrition survey for the armed forces of Iran.

Miss Wesley, who will work with Fred V. Hein and Donald A. Dukelow in furtherance of the health of the school-aged child, began her new duties on Aug. 1. She has taught health on the elementary, high school, and college levels and general science and physical education in the public schools. Miss Wesley is a registered physical therapist, with hospital experience.

A. M. A. PAMPHLET SALES

More than 396,000 health education pamphlets were sold by the A. M. A.'s Bureau of Health Education during the 12 months ending June 30, 1956. These sales indicate a widespread use by nonmedical persons of materials prepared and sold by the A. M. A. They also furnish an index of the health interests of a considerable cross section of the American people. The largest single group of pamphlets sold was 69,000 on the health of the school-age child. Mental health pamphlets sold totaled 35,574, those on accidents and first aid 25,575, teeth 18,674, nutrition and diet 18,000, maternal health 17,296, physical fitness 15,319, and heart and circulation 12,400. Most of the pamphlets are reprinted from *Today's Health.*

CRASH INJURY FILM

The general public will learn about the role played by physicians in prevention of auto crash injuries in a new motion picture just completed by the American Medical Association in cooperation with the Ford Motor Company. The 15-minute film, entitled "On Impact," incorporates information on auto crash injuries presented at the A. M. A.'s Annual Meeting in June and an analysis of recent safety improvements in motor vehicle design. Featured in "On Impact" are Dr. Fletcher D. Woodward of the University of Virginia School of Medicine, Chairman of the A. M. A.'s Committee on Medical Aspects of Automobile Injuries and Deaths, and John O. Moore of Cornell University Medical College. "On Impact" will be released to television stations across the nation, for use on public service time, on Sept. 1. After that date, county and state medical societies and their auxiliaries can obtain prints from the A. M. A.'s TV Film Library for showing at either professional or public meetings.

FEDERAL MEDICAL LEGISLATION*

Second Session, 84th Congress

United States Nursing Academy

Senator Ives (R., N. Y.), in S. J. Res. 188, proposes to establish in the Department of Defense an Academy of Nursing to train young women in nursing for the armed forces. The Secretary of Defense would select one "cadette" annually for each member of Congress from among candidates submitted by the member. The President would appoint 30 "cadettes." Graduates of the academy would have to agree to serve for not less than three consecutive years in the armed forces. This measure was referred to the Committee on the Armed Services.

*From the Washington Office of the American Medical Association.

Poliomyelitis Vaccine Liability

Senator Welker (R., Idaho), in S. 4168, would "authorize the payment of compensation for certain losses suffered as the result of the outbreak of polio following the early use of poliomyelitis vaccine" if contracted "(1) prior to June 1, 1955, and within thirty days after receiving one or more injections of poliomyelitis vaccine, or (2) as the direct result of exposure to one or more individuals who contracted poliomyelitis under the circumstances specified in clause (1)." This measure was referred to the Committee on the Judiciary.

Health Insurance Pooling

Senators Hill (D., Ala.) and Smith (R., N. J.), in S. 4172, and Congressmen Thompson (D., N. J.), in H. R. 12140, and Priest (D., Tenn.), in H. R. 12153, have introduced the administration's measure "to encourage the extension and improvement of voluntary health prepayment plans or policies by permitting pooling." The proposed plan is a redraft of the administration's reinsurance scheme. However, it abandons the proposal of a government-operated reinsurance fund and instead waives the federal and state antitrust laws so that small insurance companies (writing less than 1% of total health insurance) and voluntary plans may pool certain of their assets to guard against individual losses from experimental types of coverage. These measures were referred to the Committee on Labor and Public Welfare.

Scholarships for Postgraduate Education in Public Health

Senator Magnuson (D., Wash.), in S. 4208, proposes "to amend the Public Health Service Act to provide a program of scholarships for postgraduate education." The bill would authorize $250,000 annually for five years. The surgeon general of the Public Health Service would consult the National Advisory Health Council in determining the need for scholarships in each of the fields relating to public health. Awards would include the cost of tuition, books, equipment, and maintenance. This measure was referred to the Committee on Labor and Public Welfare.

State Committees on Higher Education

Senators Smith (R., N. J.) and Hill (D., Ala.), in S. 4211, and Congressman Elliott (D., Ala.), in H. R. 12237, propose "to encourage and assist the States in the establishment of State committees on education beyond the high school." The bills would authorize $800,000 to be allotted to the states for the purpose of calling together educators and other interested persons to consider educational problems beyond high school and to make appropriate recommendations. Appropriation authorization would also be provided for the expenses of the President's Committee Beyond High School. This measure was passed by both Senate and House and became Public Law 813.

Presumption of Service Connection for Multiple Sclerosis

Senator Morse (D., Ore.), in S. 4286, proposes to increase from two to three years the period after discharge from active military service during which multiple sclerosis of 10% or of more degrees is considered service-connected. This measure was referred to the Finance Committee.

Narcotics Addict Treatment and Rehabilitation Act

Senators Eastland (D., Miss.), Daniels (D., Texas), Welker (R., Idaho), and Butler (R., Md.) propose, in S. 4296, "to authorize the care and treatment at facilities of the Public Health Service of narcotic addicts committed by State courts and other authorities." Any narcotics addict making application voluntarily for treatment in federal hospitals for his addiction would make application to the U. S. District Court for commitment. Commitment would be made for a period of time estimated by medical authorities as sufficient for the addict to receive maximum benefits from the treatment. Addicts would not be admitted if they had been treated on three or more occasions in federal hospitals and had again lapsed to the use of drugs. The voluntary patient could be required to pay for care and subsistence; otherwise, the Public Health Service would bear the expense. The surgeon general would also accept, treat, and forcibly detain narcotics addicts committed by state courts. The cost of providing care would be a charge upon the state whose courts committed the addict. This measure was referred to the Committee on Labor and Public Welfare.

Tax Deduction for Contributions to Medical Research

Congressmen Keogh (D., N. Y.), in H. R. 12151, and Curtis (R., Mo.), in H. R. 12152, have introduced identical measures to permit contributions to medical research organizations as a deduction in computing personal income tax. The present law allows deduc-

tion of contributions to hospitals up to 10% of the taxpayer's adjusted gross income in addition to 20% allowance for contributions to other recognized charitable organizations. The proposed bill would permit inclusion of contributions to "medical research organizations directly engaged in the continuous active conduct of medical research in conjunction with a hospital" as well as to hospitals. These measures were referred to the Ways and Means Committee.

Grants for Studies and Projects for Aged

Congressmen Williams (D., N. J.), in H. R. 12154, and Flood (D., Pa.), in H. R. 12260, have introduced measures identical to S. 4117, introduced by Senators Hill (D., Ala.) and Kennedy (D., Mass.) and previously reported. These bills "would authorize Federal grants to assist in the development and operation of studies and projects to help older persons." Eight similar measures previously reported would establish a Bureau of Older Persons in the Department of Health, Education, and Welfare, but this is not provided in the William, Flood, or Hill-Kennedy bills. The House measures were referred to the Committee on Education and Labor.

Extension of Vocational Rehabilitation Act Amendment

Congressman Elliott (D., Ala.), in H. R. 12161, has introduced a measure identical to S. 3875, introduced by Senator Magnuson (D., Wash.), and H. R. 11369, introduced by Congressman Dempsey (D., N. Mex.), previously reported. These measures would extend until June 30, 1957, that part of the Vocational Rehabilitation Act that pertains to grants and other nonprofit organizations and agencies that are "planning, preparing for, and initiating . . . substantial nationwide expansion of vocational rehabilitation programs in the States." The House bills were handled by the Committee on Education and Labor and the Senate bill by the Labor and Public Welfare Committee. The Senate bill became Public Law 937.

Medical Care for Foreign Service Employees Overseas

Senator George (D., Ga.) has introduced, in S. 3481, an administration measure to make foreign service more attractive for citizens of the United States. The provisions of the bill include medical benefits for certain government employees while they are stationed abroad. The covered employees would be State Department Foreign Service officers and employees and employees of the International Cooperation Administration, the U. S. Information Agency, and the Foreign Agricultural Service of the Department of Agriculture and their dependents. There are roughly 10,000 employees and 13,000 dependents in these groups. The government would assume responsibility for medical expenses within prescribed limits for illnesses or injuries incurred abroad when they are sufficiently serious to require hospitalization or similar care outside a hospital. For officers and employees the government would pay the full cost of treatment. For the employee's dependents the employee would be required to assume a part of the cost in each instance, and a maximum is placed upon the government's liability for financial help. The employee must assume up to $35 of the cost of treatment for his dependents for each illness, with the government assuming responsibility in excess of that amount but not in excess of 120 days of hospitalization or equivalent care for each illness or injury. The Secretary is given authority to pay transportation expenses involved in moving a dependent from a locality in which no suitable hospital or clinic exists to the nearest suitable hospital or clinic. Where hospitalization beyond 120 days is required, the Secretary may authorize continued payment when it is determined that the illness or injury is caused by the fact that the dependent is, or has been, located abroad. It is intended that regulations prescribed by the Secretary will exclude certain types of medical expense, such as optional plastic surgery, dental treatment, and normal maternity cases. Authority is given the Secretary to provide medical benefits through insurance or private health plans, if such methods are as good or as economical as direct payment by the government. The employment of a physician or other medical personnel is authorized in first-aid stations at posts where such is necessary. In cases where suitable government or private facilities already exist, the Secretary is not authorized to make such arrangements. It is thought that much of the care would be in U. S. government military medical facilities. This bill was referred to the Committee on Foreign Relations, where hearings were held for one day only. The bill was reported to the Senate and was passed by both houses to become Public Law 828.

Congressman Morrison (D., La.) in H. R. 12193, introduced a similar measure July 11 providing benefits for all United States citizens who are civilian government employees overseas, but hearings were not held. It is expected that a similar measure will be introduced early in the first session of the 85th Congress. The Morrison bill was referred to the Post Office and Civil Service Committee.

MEDICAL NEWS

CALIFORNIA

Lane Medical Lectures.—The 33rd course of Lane Medical Lectures will be delivered in Lane Hall, Stanford University School of Medicine (Sacramento Street near Webster, San Francisco), by Sir Charles Dodds, M.V.O., M.D., Ph.D., F.R.S., Courtauld Professor of Biochemistry, the Middlesex Hospital Medical School, London, England. The medical profession, students, teachers, and research workers in medicine and allied sciences are cordially invited to attend the series on "Biochemical Experiments in Endocrinology," which will be presented on the following dates at 8:15 p. m.:

Sept. 17. The Sex Hormones and the Development of the Synthetic Estrogens.
Sept. 18. Biological Action of the Synthetic Estrogens.
Sept. 19. Adrenal Secretion.
Sept. 20. Aldosterone.
Sept. 21. Pituitary Hormones.

Course in Medical Photography.—"Photography in Medical Practice and Research," a new postgraduate course, will be offered on Thursdays at 7:30 p. m., Sept. 20-Dec. 13, at the Medical Center of the University of California at Los Angeles to graduates of approved medical and dental schools and to research workers with consent of the course chairman. The fee is $35. Topics will include lighting, exposure, black-and-white film processing, the print, the motion picture camera, the reproduction of color, and other pertinent factors. Information and registration blanks may be obtained from Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California, Los Angeles 24.

IOWA

Personal.—Dr. Robert C. Hardin, professor of internal medicine, State University of Iowa College of Medicine, Iowa City, has been given a training grant ($8,000 a year for five years) by the Institute of Arthritis and Metabolic Diseases, National Institutes of Health. Dr. Hardin's studies are on long-term follow-up of patients with diabetes.

General Practice Meeting.—The annual meeting of the Iowa Academy of General Practice will be held at the Hotel Savery in Des Moines, Sept. 13-14. Greetings will be extended Thursday morning by Dr. Walter D. Abbott, Des Moines, president, Polk County Medical Society. Presentations by out-of-state speakers will include:

Pain Patterns in Abdominal Disease. Disease of Left Colon, Lucian A. Smith, Rochester, Minn.
Diagnostic and Therapeutic Nuggets, Oscar F. Rosenow, Columbus, Ohio.
Use of Adrenal Steroids in Practice, H. Dalton Jenkins, Denver.
New Therapeutic Methods in Dermatology, Roy L. Kile, Cincinnati.
Diagnosis of Hypertension. Treatment of Hypertension, J. Harold Kotte, Cincinnati.
Diagnosis and Management in Peripheral Vascular Disease. Surgery of Blood Vessels (with movie), Fay A. LeFevre, Cleveland.
Indications for Gastrectomy, Claude J. Hunt, Kansas City, Mo.

After the luncheon address by Mr. Philip G. Green, Washington, D. C., director, Division of Juvenile Delinquency Service, Department of Health, Education, and Welfare, the Ernest E. Shaw Lecture, "Diagnosis and Treatment of Thyroid Disease," will be delivered by Dr. George Crile Jr., Cleveland.

MASSACHUSETTS

Endocrine Society Medal.—The 1956 medal of the Endocrine Society has been bestowed on Frederick L. Hisaw, LL.D., Ph.D., professor of zoology at Harvard University, who discovered relaxin. He also investigated the fundamental nature of the hormonal interrelationships between the pituitary body and the ovary in the regulation of cyclic reproductive functions.

Wien Cancer Award.—Ruth Graham, cytologist from the Massachusetts General Hospital in Boston, has received the Wien award of $1,000 for 1955, in recognition of "outstanding research in cancer cytology." The presentation of the award was made by Dr. Edmund V. Cowdry, St. Louis, at the Cancer Institute at Miami, Fla., following her paper, "Cytologic Evaluation of Radiation Sensitivity of Cancer of the Cervix."

MICHIGAN

Personal.—At commencement exercises June 14, Wayne University, Detroit, bestowed the honorary degree of doctor of laws on Dr. Lawrence Reynolds, professor of radiology. Dr. Reynolds is president of the Detroit Public Library Commission and editor of the *American Journal of Roentgenology, Radium Therapy,* and *Nuclear Medicine*.

Personal.—Dr. Leo G. Christian, Lansing, a member of the Ingham County Medical Society for 34 years, received the society's Service Citation at its Clinic Day, May 3, in Lansing. The citation read, in part: "Doctor Christian has enriched the practice of medicine in this community, and focused our attention on the significance of medical education in general hospitals."

Psychiatric Hospital Dedicated.—The Lafayette Clinic, a 143-bed psychiatric hospital, adjacent to Wayne University College of Medicine, Detroit, was dedicated May 7. The professional staff, headed by Dr. Jacques S. Gottlieb, is being integrated academically with the university department of psychiatry. The clinic will serve as a research and training hospital in the behavioral sciences. Presently it plans to concentrate its research efforts in three major fields: (1) schizophrenia, (2) factors responsible for defective functioning in children, such as mental deficiency, epilepsy, and cerebral palsy, and (3) study of the primary process of treatment by the psychiatrist—psychotherapy. Diagnostic services of the clinic will be available on a referral basis to the private patients of members of the medical profession. Both outpatients and bedpatients will be accepted, provided they are suitable for the purposes of the clinic.

MONTANA

Society News.—Officers of the Montana chapter of the American Academy of General Practice include Dr. George E. Trobough, Anaconda, president; Dr. William E. Harris, Livingston, president-elect; and Dr. Amos R. Little, Helena, vice-president.

State Medical Meeting in Great Falls.—The 78th annual meeting of the Montana Medical Association (George W. Setzer, Malta, president) and the seventh annual meeting of the Great Falls Medical-Surgical Conference will be held jointly at the Hotel Rainbow in Great Falls, Sept. 13-15. Out-of-state speakers and their first presentations will include:

Frederic C. Bost, clinical professor of orthopedic surgery, University of California School of Medicine, Berkeley-San Francisco, Orthopedic Emergencies of Childhood and Adolescence.
E. Stanley Crawford, assistant professor of surgery, Baylor University College of Medicine, Houston, Texas, Recent Developments in the Management of Occlusive Arterial Disease of the Lower Extremities.
Stanton A. Friedberg, clinical associate professor of otolaryngology, University of Illinois College of Medicine, Chicago, Diseases of the Mouth and Throat (Kodachrome).
Eleanor M. Humphreys, professor of pathology, University of Chicago School of Medicine, Malignant or Benign Disease? Problems in the Right Lower Quadrant.
Arthur J. Jampolsky, assistant clinical professor of surgery (ophthalmology), Stanford University School of Medicine, Stanford University—San Francisco.
Charles E. McLennan, professor of obstetrics and gynecology, Stanford University School of Medicine, Stanford University—San Francisco, Management of Dysfunctional Uterine Bleeding.
Max Miller, associate professor of medicine, Western Reserve University School of Medicine, Cleveland, Historical Developments, Physiological Knowledge and Possible Mechanisms of Action of Orally Administered Sulfonyl-Urea Drugs in Diabetes.
Burtrum C. Schiele, professor of psychiatry, University of Minnesota Medical School, Minneapolis, New Drugs in the Treatment of the Nervous Patient.

The scientific program will include several clinicopathological conferences and a symposium of geriatrics. On Thursday evening the association will hold its annual reception and banquet. The officers of Malmstrom Air Force Base and the Great Falls Chamber of Commerce have arranged a conducted tour of the base for Friday afternoon. On Friday evening the Cascade County Medi-

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

cal Society will be host to Montana physicians and their guests at a dinner dance at the Meadowlark Country Club in Great Falls. All Montana physicians as well as all physicians in the Rocky Mountain area and in Canada are cordially invited to attend this meeting. The women's auxiliary will meet concurrently.

NEW YORK

Day Psychiatric Center.—The first of two day hospital centers to be organized by the New York State Department of Mental Hygiene was opened at Hudson River State Hospital, Poughkeepsie, July 2. According to Dr. Paul H. Hoch, state commissioner of mental hygiene, to determine the value of psychiatric and supportive therapy for suitable mental patients in a hospital setting during the daytime hours, patients at the new center will receive psychiatric care on a voluntary outpatient basis, during the day, remaining for the rest of the time at their homes or continuing insofar as possible with their family and community activities. The second day hospital is expected to open in the near future in connection with the Brooklyn Aftercare Clinic, 105 Schermerhorn St. The day hospital has been designed for the care of adults 18 years or older and will operate on a five days a week schedule from 8:30 a. m. to 4 p. m. Patients will be referred primarily by community physicians and social agencies and on a volunteer basis. They also may be accepted after provisional release from the state hospital to complete the course of treatment or for social and vocational readaptation as a means of helping to "tide them over" in making an adjustment from the hospital to the community. The staff of 14 who will administer the day hospital includes Dr. O. Arnold Kilpatrick, director of the Hudson River State Hospital; Dr. Marian F. Axel, psychiatrist-in-charge of the center; two nurses; a social worker; occupational therapist; recreational worker; two male and four female psychiatric aides; and a secretary-receptionist.

New York City

Hospital News.—Lenox Hill Hospital, 111 E. 76th St., has established an Adult Allergy Clinic within the department of medicine, with Dr. Laurence Farmer as attending physician and chief.

Professor of Obstetrics and Gynecology Appointed.—Dr. Martin L. Stone, a member of the faculty of New York Medical College, Flower and Fifth Avenue Hospitals, since 1949, has been appointed professor of obstetrics and gynecology and director of the department. Dr. Stone is a member of the special committee on infant mortality of the New York County Medical Society.

English Course for Foreign Physicians.—A new course in practical English, to be offered during the 1956 autumn semester at New York University's division of general education, will be open to doctors, interns, and hospital administrators whose native tongue is not English. Emphasis will be given to oral and written practice of the vocabulary commonly used in medical histories, consultations, evaluations, case reports, progress notes, and interviews of patients. Several American physicians will serve as guest lecturers for the course. The course, conducted by Mr. Grant Taylor, director of the division's English language program for international students, will be presented from 6:15 to 8 p. m. on Thursdays, Sept. 27-Jan. 17. Interested persons may register either by person or through the mail until October at the Division of General Education, New York University, 1 Washington Sq. North, New York 3.

OREGON

Practitioners Meet in Portland.—The annual meeting of the Oregon chapter, American Academy of General Practice, will convene Sept. 13-15 at the Masonic Temple in Portland under the presidency of Dr. Raymond M. Reichle, Portland. Mr. Mac F. Cahal, executive secretary, American Academy of General Practice, will speak at the banquet at the Heathman Hotel Friday night on "Let the People Behold You." Other out-of-state speakers will include:

H. Corwin Hinshaw, San Francisco, The Questionable Survey Chest X-Ray.
John W. Huffman, Chicago, The Way is Uncharted.
Aram Glorig Jr., Los Angeles, Hearing Loss and the General Physician.
Carl T. Javert, New York, Psychosomatic Abortion.

PENNSYLVANIA

Memorial Tablet.—As the first of a series of events scheduled in connection with the "Year of Commemoration" in Mifflin County, a tablet was unveiled in McVeytown, the birthplace of the late Dr. Joseph T. Rothrock, known as the father of Pennsylvania forestry. Dr. Rothrock, who died in June, 1922, was credited with originating the idea of establishing a tuberculosis hospital at Mont Alto, which resulted in the building of Pennsylvania State Sanatorium No. 1. He served as superintendent of the state sanatorium for consumptives, South Mountain Camp, as professor of botany at the University of Pennsylvania, and as commissioner of forestry. During the commemorative ceremonies, pupils of the Rothrock Joint High School and the Lewistown High School planted thousands of seedlings in memory of Dr. Rothrock.

Philadelphia

Appoint Musser Professor.—Dr. Colin M. MacLeod has been named John Herr Musser Professor of Research Medicine and chairman of the department of research medicine, University of Pennsylvania School of Medicine, to succeed Dr. William C. Stadie, whose retirement with the rank of professor emeritus became effective June 30. Dr. MacLeod has been chairman, department of microbiology, New York University College of Medicine, since 1941. During February and March of this year, he was a member of a mission sent under the auspices of the U. S. Public Health Service to Russia to study research and teaching programs in medical education. Dr. MacLeod, whose special fields of interest are infectious diseases, microbial genetics, and immunology, is a member of the Armed Forces Epidemiological Board, a member of the advisory panel on medical sciences to the Assistant Secretary of Defense for Research and Development, and a consultant to the surgeon general of the Army. Since 1945 he has been associate editor of the *Journal of Immunology*.

Personal.—Earle H. Spaulding, Ph.D., head, department of microbiology, Temple University Medical Center, has been appointed chairman of the advisory committee of certification of the newly organized American Academy of Microbiology.——Dr. Louis H. Clerf, emeritus professor of bronchoesophagology and laryngology, Jefferson Medical College of Philadelphia, has received the 33rd annual Strittmatter award of the Philadelphia County Medical Society, of which he is a past-president.——At the annual meeting of the Endocrine Society, June 7-9 in Chicago, the Ciba award for outstanding research in human endocrine glands, particularly as they affect the development of the child, was presented to Dr. Alfred M. Bongiovanni, associate professor of pediatrics at the University of Pennsylvania School of Medicine. Dr. Bongiovanni, who is currently secretary of the Philadelphia Endocrine Society, received the award for work on the chemical nature of adrenal cortex hormones.——Mr. Edward R. Loveland, for more than 30 years executive secretary of the American College of Physicians, has been made an honorary fellow of the college—the only layman ever so honored. He was presented with an illuminated certificate, reading in part: "As executive secretary of the college from 1926-1956 his ability and devotion have been outstanding. His services have been distinguished by his constant adherence to the highest traditions of the medical profession."

Pittsburgh

Society News.—The Pittsburgh Roentgen Society recently elected Dr. Newton Hornick, Pittsburgh, president; Dr. J. Dutney Hayes, Mt. Lebanon, Pa., vice-president; Dr. Norman B. Tannehill, Pittsburgh, secretary; and Dr. Harrison H. Richardson, Rochester, Pa., treasurer.

RHODE ISLAND

Dr. Donley to Edit State Journal.—Dr. John E. Donley, past-president of the Rhode Island Medical Society, the Providence Medical Association, and the Rhode Island Society of Psychiatry and Neurology, has been named editor-in-chief of the *Rhode Island Medical Journal*, succeeding the late Dr. Peter Pineo Chase. John E. Farrell, Sc.D., continues as managing editor. Dr. Donley was the recipient of the City of Providence Charles V. Chapin medal award in 1953 and in 1952 received a citation from President Eisenhower's Committee on Employment of the Physically Handicapped for his "outstanding services to the disabled" in Rhode Island. Medical director of the Rhode Island Curative Center, Dr. Donley has been chairman of the publications committee of the state medical society for more than 10 years.

TENNESSEE

Refresher Course for Nurses.—In an attempt to overcome a shortage of registered nurses that has hampered the opening of additional floors in the new E. H. Crump Memorial Hospital, the University of Tennessee School of Nursing and the city of Memphis will offer a refresher course, Sept. 10-Oct. 5 at the John Gaston Hospital, for registered nurses now inactive who wish to return to the profession. The fee of $40 will be refunded to those nurses who complete the course and are employed in a permanent position by Memphis city hospitals.

WASHINGTON

State Medical Meeting in Seattle.—The 67th annual session of the Washington State Medical Association will convene in the Olympic Hotel, Seattle, Sept. 16-19. Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association, will be at the general assembly, Tuesday, 11 a. m., with Dr. I. C. Munger Jr., Vancouver, Canada, who will deliver his presidential address. The complimentary public relations luncheon on Wednesday will have as its theme "Congress, Doctors, and Politics." Panel members discussing the subject will be Dr. J. Lafe Ludwig, Los Angeles, member of the A. M. A. Committee on Legislation; C. Joseph Stetler, Chicago, LL.M., Director of the A. M. A. Law Department; and Richard G. Van Buskirk, LL.B., Chicago, Executive Secretary, A. M. A. Committee on Legislation. A panel has been scheduled on pitfalls in ocular diagnosis and a symposium on asyphxia in the newborn. Two symposiums will also be presented at the eye, ear, nose, and throat section. The following presentations will be made by out-of-state speakers:

Treatment of Psychiatric Problems by Family Physicians, Alexander Simon, San Francisco.
Malpractice Hazards of Drug Therapy, Harry Gold, New York.
Misuse of Endocrine Preparations, Carl G. Heller, Portland, Ore.
Nonobstetrical Problems Associated with Pregnancy, William J. Dieckmann, Chicago.
Problems and Importance of Biopsies and Exfoliative Cytology, James W. Reagan, Cleveland.

Social events will include the annual banquet and dance Tuesday evening (dress optional), the informal no-host family dinner Sunday evening, and a reception Wednesday evening. Headquarters for the annual fishing derby Monday will be Ray's Boathouse, Ballard. The golf tournament will be on Monday at the Seattle Golf and Country Club. The Sportsmen's Banquet is scheduled for Monday evening in the clubhouse of the latter club. The woman's auxiliary will meet concurrently.

WEST VIRGINIA

Symposium on Endocrinology.—A symposium on endocrinology, sponsored by the Cabell County Medical Society, will be held at the Pritchard Hotel in Huntington, Sept. 13. Physicians are cordially invited to this open meeting. Dr. Charles H. Read, associate professor of pediatrics, State University of Iowa College of Medicine, Iowa City, the sole speaker at the morning session, will discuss "Endocrine Problems of Infancy." The following program will be presented during the afternoon sessions:

Endocrine Problems of the Adolescent, Anne P. Forbes, instructor in medicine, Harvard Medical School, Boston.
The Thyroid Gland, William W. Engstrom, associate professor of medicine, Marquette University School of Medicine, Milwaukee.
Current Aspects of Adrenal Disease, Emile E. Werk Jr., associate professor of clinical medicine, University of Cincinnati School of Medicine, Cincinnati.

A cocktail party, 6 p. m., will precede dinner, 7 p. m., at which Dr. Thomas G. Folsom, Huntington, will serve as toastmaster. A panel discussion with questions and answers will follow the dinner.

Meeting on Tuberculosis.—The 36th annual meeting of the West Virginia Tuberculosis and Health Association will be held at the New Beckley Hotel in Beckley, Sept. 13-14, in cooperation with the Raleigh County Tuberculosis and Health Association. The president, Dr. Harold H. Howell of Madison, will preside at the annual business luncheon Thursday, 12 noon, and Dr. John W. Whitlock of Beckley, president of the Raleigh County Medical Society, at the afternoon scientific session arranged by the West Virginia Trudeau Society. Dr. Harry E. Walkup, chief of surgery at the Veterans Administration Hospital, Oteen, N. C., will present a paper on "Asymptomatic Pulmonary Lesion and Unresolved Pneumonia," and Dr. Howard M. Payne, professor of medicine, Howard University College of Medicine, Washington, D. C., will discuss "Basic Considerations in the Problem of Tuberculosis." The final paper (subject to be announced) will be presented by Dr. Sol Katz of Washington, D. C., chief, division of pulmonary diseases, District of Columbia General Hospital. Members of the board of directors of the Raleigh County Tuberculosis and Health Association will be hosts at a reception, 6 p. m., preceding the annual banquet, at which the guest speaker will be Mr. L. Steele Trotter, treasurer, West Viriginia Board of Control, who will discuss "Problems Relating to West Virginia Sanatoria." At the general session Friday morning, Mr. Ray Milliron, president, Raleigh County Tuberculosis and Health Association, will preside. "The Role of the Department of Public Assistance in Providing Services to the Disabled" will be presented by Mr. Earle Wolfe, chief, division of social services, West Virginia State Department of Public Assistance, Charleston, and "The Public Health Nurse in Tuberculosis Control" by Miss Sheila Dwyer, assistant director of nursing service, Harlan Memorial Hospital, Miners Memorial Hospital Association, Harlan, Ky. Dr. Joseph E. Martin Jr. of the department of internal medicine, the Golden Clinic, Elkins, will be the final speaker on the program (subject to be announced).

WISCONSIN

University News.—Dr. Albert C. Schmidt, chief of surgery at Milwaukee Children's Hospital and chief of orthopedics at Columbia Hospital, Milwaukee, has been named clinical professor of orthopedic surgery at Marquette University School of Medicine, where from 1946 to 1952 he was assistant clinical professor.

Grant in Human Genetics.—The University of Wisconsin Medical School, Madison, will begin a new program of study in human genetics next fall through a three-year grant of $25,000 from the Rockefeller Foundation. Dr. Newton Morton, a recent graduate of the department of genetics at Wisconsin, will direct the study, teach a course in human genetics, the first of its kind offered in the medical school, and give lectures emphasizing genetics in other aspects of medical, surgical, and pediatrics practices. During 1952-1953 Dr. Morton was a member of the Atomic Bomb Casualty Commission of Hiroshima, Japan, which studied the effects of the atomic radiations on the citizens of Hiroshima.

GENERAL

Federal Hospital Alumni Breakfast.—During the American Hospital Association convention, the Federal Hospital Institute Alumni Association will hold its annual breakfast meeting at the Palmer House, Chicago, Sept. 18, 8 a. m. Captain Edward S. Lowe, commanding officer, U. S. Naval Hospital, Great Lakes, Ill., is in charge of arrangements. Cost of the breakfast is $3.25 per alumnus.

Research in Blood Diseases.—The Hematology Research Foundation invites applications for grants-in-aid in hematological research for a period of one year. Nine copies of application (forms available on request) must be submitted no later than Oct. 15 to the Hematology Research Foundation, 64 W. Randolph St., Chicago 1. Awards will be announced by the medical advisory board of the foundation the first part of November. The board will choose the applicants on the basis of merit of the proposed research project.

Chemists Meet in Atlantic City.—The 130th national meeting of the American Chemical Society will convene at Atlantic City, N. J., Sept. 16-21. Symposiums will be held on methods of combating air pollution, research on promising new drugs, improvements in science education, new findings in the field of cosmetics, use of radioactive materials to sterilize foods and medicines, carbohydrate metabolism and diabetes, and recent advances in cancer research. Mr. Robert C. Watson, United States commissioner of patents, will speak on "Patents and Pharmaceuticals" at a luncheon of the division of medicinal chemistry on Wednesday.

Essay Contest for Welfare Workers.—The recently established Foundation for Voluntary Welfare (214 Front St., San Francisco), a nonprofit corporation, announces its National Awards Com-

petition, an essay contest for salaried employees or unpaid volunteer workers in any social welfare agency. The contest is open to any person who is now or ever has been so engaged for one year or more. Cash awards totaling $13,250 will be presented for the best ideas on "A Way to Extend Voluntary Activities and Organization in Social Welfare." Special fields of welfare work suggested as topics for the competition include juvenile delinquency, mental health, basic medical research, the aging, rehabilitation, alcoholism, the blind, child welfare, chronic illness, the crippled, the deaf, medical care, migrant workers, and recreation. Entries will be judged only on their content, not their literary style. All essays (1,200–2,500 words) must be received not later than Nov. 15 by the National Awards Competition, Foundation for Voluntary Welfare, P. O. Box 2609, San Francisco. There will be a first grand award of $2,000 and a second grand award of $1,000. First and second awards in each of the special fields of welfare work will be $500 and $250 respectively. All winning essays will be published in book form.

Industrial Health Conference.—The third annual Pacific Northwest Industrial Health Conference will convene Sept. 10-11 at the Multnomah Hotel, Portland, Ore. The Monday morning session will open with "Mental Health Problems in Industry," for which the speaker will be Dr. William C. Menninger, Topeka, Kan. Dr. Menninger will moderate a panel discussion in which the viewpoints of management, the industrial physician, the industrial nurse, and the plant worker will be presented. At 12 noon the conference will hold a forum—luncheon meeting with the Portland Chamber of Commerce. After luncheon Dr. Jermyn F. McCahan, medical director, Loss Prevention Department, Liberty Mutual Insurance Company, Boston, will be the speaker for a program, "Why Management, Labor and Medicine Must Look at the Total Industrial Health Picture," and will moderate the panel discussion, "Where Are We Going in Workmen's Compensation?" which will conclude the afternoon session. Dr. R. Christopher Leggo, consultant in industrial medicine, Menlo Park, Calif., will be the speaker. At 11 a. m. Tuesday "Industrial Vision Conservation" will be presented by Dr. Hedwig S. Kuhn, Hammond, Ind. At the luncheon session Dr. Menninger will speak on "Mental Health of the Executive." At 2 p. m. "The Noise Problem in Industry" will be considered by Dr. Aram Glorig, director of research, Research Center of the Sub-Committee on Noise in Industry, Los Angeles, who will also serve as moderator for the panel discussion on that subject.

Simplification of Medical Records.—The Commission on Professional and Hospital Activities Inc. was recently organized by the American College of Surgeons, American Hospital Association, American College of Physicians, and the Southwestern Michigan Hospital Council to conduct a medical statistical service for the improvement of medical and administrative practices in hospitals through simplification of medical records and their analysis. The commission has received a grant of $260,000 from the W. K. Kellogg Foundation, Battle Creek, Mich., to support the program for three years, after which it is expected the service may be continued on a self-sustaining basis. According to the president of the commission, Dr. Paul R. Hawley, Chicago, director, American College of Surgeons, "By mechanizing the tabulation and indexing of hospital statistics, the program enables hospitals to obtain more complete and reliable data on patient care." Members of the commission appointed by the participating organizations include: Dr. Hawley and Dr. Robert S. Myers, Chicago, assistant director (American College of Surgeons); Dr. C. Wesley Eisele, director of postgraduate medical education, University of Colorado School of Medicine, Denver, and Dr. Eliot E. Foltz, Winnetka, Ill. (American College of Physicians); Dr. Edwin L. Crosby, Chicago, director, and Maurice J. Norby, deputy director (American Hospital Association); and C. Tiffany Loftus, director of Mercy Hospital, Benton Harbor, Mich. (Southwestern Michigan Hospital Council). Representatives at large are Rt. Rev. Msgr. Donald A. McGowan, director of the National Catholic Welfare Conference, Washington, D. C., and Dr. Luther C. Carpenter, Grand Rapids, Mich. In addition to Dr. Hawley, other officers elected at an organization meeting were Dr. Crosby, treasurer, and Dr. Vergil N. Slee, director of the Barry County Health Center, Hastings, Mich., secretary and director. The commission will establish its headquarters and conduct its services at Ann Arbor, Mich.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Aug. 11, 1956: Paralytic Type	Aug. 11, 1956: Total Cases Reported	Aug. 13, 1955, Total
New England States			
Maine	--	1	18
New Hampshire	--	1	24
Vermont	--	1	1
Massachusetts	2	11	413
Rhode Island	--	1	16
Connecticut	1	7	50
Middle Atlantic States			
New York	11	39	117
New Jersey	6	14	39
Pennsylvania	--	3	43
East North Central States			
Ohio	11	24	91
Indiana	11	25	25
Illinois	131	218	75
Michigan	9	32	92
Wisconsin	8	19	135
West North Central States			
Minnesota	1	5	73
Iowa	3	42	61
Missouri	7	24	16
North Dakota	--	--	4
South Dakota	1	3	1
Nebraska	1	12	16
Kansas	1	8	12
South Atlantic States			
Delaware	1	2	3
Maryland	1	1	18
District of Columbia	--	1	1
Virginia	3	13	23
West Virginia	5	10	11
North Carolina	11	24	36
South Carolina	2	6	23
Georgia	4	15	12
Florida	3	18	12
East South Central States			
Kentucky	2	7	43
Tennessee	3	6	8
Alabama	--	3	11
Mississippi	10	21	9
West South Central States			
Arkansas	9	12	15
Louisiana	22	41	12
Oklahoma	10	15	5
Texas	14	34	79
Mountain States			
Montana	--	1	6
Idaho	1	2	9
Wyoming	--	1	1
Colorado	4	5	8
New Mexico	1	4	10
Arizona	4	5	2
Utah	--	25	6
Nevada	--	3	--
Pacific States			
Washington	1	12	14
Oregon	--	9	12
California	45	87	70
Territories and Possessions			
Alaska	--	--	2
Hawaii	2	2	8
Puerto Rico	--	--	2
Total	362	885	1,797

Meeting of Roentgen Ray Society.—The 57th annual meeting of the American Roentgen Ray Society (Dr. Paul C. Hodges, Chicago, president) will be held at the Hotel Statler, Los Angeles, Sept. 25-28. After the address of welcome by Robert G. Sproul, LL.D., president of the University of California, Dr. W. Edward Chamberlain, Philadelphia, who will be installed as president, will deliver the inaugural address, "Benefits to Mankind Through Integration of Physiology and Radiology." On Tuesday evening Dr. Chamberlain will present a medal to Dr. Oscar V. Batson, chairman, department of anatomy of the University of Pennsylvania Graduate School of Medicine, Philadelphia, after Dr. Batson's delivery of the Caldwell Lecture, "The Vertebral Vein System." Some 50 speakers will participate by invitation in the scientific sessions, which will end with the prelunchеon presentation Friday of "Essentials of Good X-Ray Film Processing" by Dr. George C. Henny, Philadelphia, and Dr. Chamberlain. The annual banquet at 7:30 p. m. Thursday will be preceded by cocktails, 6:30 p. m.

Society News.—The **American Dermatological Association** recently elected Dr. Carroll S. Wright, Philadelphia, president; Dr. Earl W. Netherton, Cleveland, vice-president; and Dr. J. Lamar Callaway, Durham, N.C., secretary.—At its annual meeting at Atlantic City, N. J., the **American Institute of Nutrition** elected the following officers: Harry J. Deuel, Ph.D., Los Angeles, presi-

dent; Robert R. Williams, Sc.D., New York, vice-president, and John B. Brown, Ph.D., Columbus, Ohio, treasurer, with R. W. Engel, Ph.D., Blacksburg, Va., continuing as secretary. Notice was received that Dr. Deuel passed away shortly after he had been informed of his election. Dr. Williams will carry on the duties of the office during the coming year.——At an organizational meeting in Chicago, April 29, the **Academy of Psychoanalysis** was founded. Physicians who are graduate psychoanalysts may qualify as fellows. Physicians and others in related fields of behavior study may apply for acceptance as scientific associates. Meetings will occur semiannually. Communications to the Academy of Psychoanalysis may be addressed to the secretary, Dr. Frances S. Arkin, New York. The other officers are Dr. Janet McKenzie Rioch, New York, president; Dr. Jules H. Masserman, Chicago, president-elect; and Dr. Leon Salzman, Washington, D. C., treasurer.——At the third annual meeting in Salt Lake City, the **Society of Nuclear Medicine** elected the following officers: president, Norman J. Holter, M.S., Helena, Mont.; vice-president, Dr. Henry H. Turner, Oklahoma City, vice-president-elect, Dr. Franz K. Bauer, Los Angeles; secretary, Dr. Robert W. Lackey, Denver; and treasurer, Dr. Lindon Seed, Chicago. The following regional groups interested in the application of radioactive isotopes to biology and medicine were inducted as chapters: **Central Society of Nuclear Medicine,** Chicago; **Colorado Society of Nuclear Medicine; Society of Nuclear Medicine of Southern California; Pittsburgh Society of Nuclear Medicine; South West Society of Nuclear Medicine; Pacific North West Society of Nuclear Medicine; South East Society of Nuclear Medicine;** and the **Montana Society of Nuclear Medicine.** The fourth annual meeting will be held in Oklahoma City, June 20-22, 1957, at the Skirvin Towers Hotel. The current address of the society is 452 Metropolitan Bldg., Denver.

LATIN AMERICA

Congress of Internal Medicine.—The second Chilean Congress of Internal Medicine will be held in Santiago, Chile, Oct. 1-6. The agenda will include Hepatitis, Diseases of the Colon, Diseases of the Mesenchima, and Hypertension and the Nephrotic Syndrome. Further information may be obtained from Prof. Francisco Rojas Villegas, Secretario General del Congreso, Avda. Bernardo O'Higgins 160, Hospital San Fco. de Borja, Santiago, Chile.

FOREIGN

John Ryle Memorial Prize.—The Medical Association for the Prevention of War (London) offers a prize of £75 (about $209) for the best essay under the title, "A World Approach to Human Survival and Health." The prize, offered as a memorial to the late John Ryle, professor of social medicine at Oxford, is open to qualified medical practitioners and medical students of any nationality. The essay must be typewritten, in English, and should preferably not exceed 5,000 words. Entries, submitted under a nom de plume, must be received not later than Dec. 31, 1956. Inquiries should be addressed to the Hon. Secretary, M. A. P. W., Dr. D. L. Kerr, 291 Burntwood Lane, London, S.W. 17, England.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Various Centers, September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

ARIZONA:* *Examination and Reciprocity.* Phoenix, Oct. 17-19. Ex. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

ARKANSAS:* *Examination and Reciprocity.* Little Rock, Nov. 8-9. Sec., Dr. Joe Verser, Harrisburg.

CONNECTICUT:* *Examination.* Hartford, Nov. 13-15. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven.

DISTRICT OF COLUMBIA:* *Reciprocity.* Washington, Sept. 10. *Examination.* Washington, Nov. 13-14. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.

GEORGIA: *Examination and Reciprocity.* Atlanta, Oct. 9-11. Sec., Mr. Cecil L. Clifton, 111 State Capitol, Atlanta 3.

ILLINOIS: *Examination.* Chicago, Sept. 24-27. Supt. of Regis., Mr. Fredric B. Selcke, Capitol Bldg., Springfield.

KANSAS: *Examination and Endorsement.* Topeka, Dec. 12-13. Sec., Dr. Lyle F. Schmaus, 872 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Endorsement.* Louisville, Sept. 19. *Examination.* Louisville, Dec. 10-12. Sec., Dr. Russell Teague, 620 South Third St., Louisville 2.

LOUISIANA: *Homeopathic.* Subject to call. Sec., Dr. F. H. Hardenstein, 903 Pere Marquette Bldg., New Orleans 12.

MAINE: *Examination and Reciprocity.* Portland, Nov. 13-14. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MICHIGAN:* *Examination.* Lansing, Oct. 10-12. Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., West Michigan Ave., Lansing 8.

MINNESOTA: * *Examination and Reciprocity.* Minneapolis, Oct. 16-18. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. Asst. Sec., Dr. N. N. Whitfield, Old Capitol, Jackson.

MISSOURI: *Examination and Reciprocity.* Kansas City, Oct. 25-27. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

MONTANA: *Examination and Reciprocity.* Helena, Oct. 2-3. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

NEBRASKA:* *Examination.* Omaha, June 17-19. Director, Mr. Husted K. Ware, Room 1009, State Capitol Bldg., Lincoln 9.

NEVADA:* *Examination and Reciprocity.* Reno, Oct. 2. Sec., Dr. G. H. Ross, 112 No. Curry St., Carson City.

NEW HAMPSHIRE: *Examination and Reciprocity.* Concord, Sept. 12-14. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Endorsement.* Trenton, Sept. 12. *Examination.* Trenton, Oct. 16-19. Sec., Dr. Patrick H. Corrigan, 28 West State St., Trenton.

NEW MEXICO:* *Examination and Reciprocity.* Santa Fe, Nov. 19-20. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

NEW YORK: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 16-19. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Sept. 24. Sec., Dr. Joseph J. Combs, Professional Bldg., Raleigh.

NORTH DAKOTA: *Examination and Reciprocity.* Grand Forks, Jan. 2-5. Sec., Dr. C. J. Glaspel, Grafton.

OREGON:* *Reciprocity.* Portland, Oct. 19-20. *Examination.* Portland, January. Ex. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland 4.

RHODE ISLAND:* *Examination.* Providence, Oct. 4-5. Admin. of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TENNESSEE:* *Examination.* Memphis, Sept. 26-27. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.

TEXAS:* *Examination and Reciprocity.* Fort Worth, Dec. 6-8. Applications for reciprocity must be complete and on file at least thirty days prior to the December meeting, and applications for examination must be complete and on file at least ten days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

UTAH: *Reciprocity.* Salt Lake City, Nov. 20. *Examination.* Salt Lake City, July 11-13. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 14.

VIRGINIA: *Examination and Reciprocity.* Richmond, Dec. 5-7. Address: Secretary to the Board, 631 First St., S.W., Roanoke.

WEST VIRGINIA: *Reciprocity.* Charleston, Oct. 8. *Examination.* Charleston, January. Sec., Dr. Newman H. Dyer, State Office Building No. 3, Charleston 5.

WISCONSIN:* *Reciprocity.* Madison, Oct. 19 and Jan. 9. *Examination.* Madison, Jan. 8-10. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., 1 West Wilson St., Madison.

WYOMING: *Examination and Reciprocity.* Cheyenne, Oct. 1. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

ALASKA:* On application in Anchorage, Fairbanks, Juneau and other towns. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: *Examination and Reciprocity.* Tucson, Sept. 18. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

ARKANSAS: *Examination and Reciprocity.* Little Rock, Oct. 1-2. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Little Rock.

COLORADO: *Examination and Reciprocity.* Dec. 5-6, Lincoln and Denver. Sec., Dr. Esther B. Starks, 1439 Ogden St., Denver 18.

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 22-23. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington.

MICHIGAN: *Examination and Reciprocity.* Ann Arbor and Detroit, Oct. 12-13. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg., Lansing.

MINNESOTA: *Examination and Reciprocity.* Minneapolis, Oct. 2-3. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

OKLAHOMA: *Examination and Reciprocity.* Oklahoma City, Sept. 28-29. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Sept. 8 and Dec. 1. Dr. Earl M. Palett, Sec., State Board of Higher Education, Eugene.

TEXAS: *Reciprocity.* Dallas, Sept. 29. *Examination.* Dallas, Oct. 19-20. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

WISCONSIN: *Examination.* Madison, Sept. 21. Milwaukee, Dec. 1. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

ALASKA: *Examination and Reciprocity.* Anchorage and Juneau, first week of February, April, June, August and November. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

*Basic Science Certificate required.

GOVERNMENT SERVICES

AIR FORCE

New Air Force Hospital.—The newest of the United States Air Force's medical treatment facilities, a 50-bed hospital, was dedicated at Kindley Air Force Base in Bermuda on June 21, 1956. This is a permanently constructed two-story concrete structure, incorporating many of the newest developments in hospital planning. The principal guest speakers at the dedication ceremony were Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical); Lieut. Gen. Sir John Woodall, governor of Bermuda; and Major Gen. William H. Powell, deputy surgeon general of the U.S. Air Force. Also attending the ceremony were Rear Adm. B. E. Bradley, deputy surgeon general of the U.S. Navy; Dr. Wilburt C. Davison, dean of the Duke University Medical School; Col. George W. Peterson, commander of Kindley Air Force Base; Major Ignatius Stein, commander of the hospital; many local dignitaries; and members of the Air Force surgeon general's staff and the Military Air Transport Service surgeon's staff.

Personal.—Brig. Gen. Harold H. Twitchell will be the key speaker at the semiannual meeting of the Fairfield County Medical Association of Connecticut on Oct. 3. The subject will be "The Utilization of Reserve Medical Personnel During Total War."

ARMY

Curator of Museum Retires.—Col. Hugh R. Gilmore Jr., M.C., curator of the Medical Museum of the Armed Forces Institute of Pathology, has retired from the Army. After several years in private practice, Colonel Gilmore joined the Army Medical Corps in 1926. In World War II, he was preventive medicine officer for various command headquarters in the North African and Italian Theater of Operations. He has been awarded the Legion of Merit, the Bronze Star, the European Theater of Operations campaign ribbon with four stars, the Italian Order of the Crown, and the Italian Cross of Military Valor. He is a diplomate of the American Board of Pathology.

New Commandant at Army Institute of Research.—Col. Richard P. Mason, M. C., U. S. Army, has been named commandant of Walter Reed Army Institute of Research in Washington, D. C. He succeeds Brig. Gen. John R. Wood, M. C., who has retired from the Army to accept the position of vice-president and director of research of a New York pharmaceutical company.

NAVY

Admiral Pugh Retired.—Rear Adm. Lamont Pugh retired on Aug. 1. In June, 1917, shortly after the United States entered World War I, he enlisted in the U. S. Marine Corps, serving as a private and later as a corporal. At the war's end he was in the Officers' Training School, Quantico, Va. He returned to civil life in 1919 and won the Herndon Scholarship in the department of medicine at the University of Virginia. In compliance with a requirement of the scholarship, he entered the Medical Corps of the Navy on receiving his degree of doctor of medicine in 1923. In December, 1946, he was made deputy and assistant chief of the Bureau of Medicine and Surgery, Navy Department, with the rank of rear admiral, and in December, 1950, he was named surgeon general of the Navy and chief of the Bureau of Medicine and Surgery, an office that he held for four years. After the expiration of his four-year tenure he became the inspector general for the medical department of the Navy and remained in that office until ordered to command the National Naval Medical Center, Bethesda, Md., in September 1955.

Research Unit Established in Formosa.—Ceremonies inaugurating the establishment of the U. S. Naval Medical Research Unit no. 2, at Taipei, Taiwan (Formosa), were held on June 22 and included addresses by Carl L. Rankin, U. S. ambassador to China, and Chien Szu Leing, president of the National Taiwan University. The commanding officer of the unit is Capt. Robert A. Phillips, M. C., U. S. Navy.

Personal.—Capt. Frank P. Gilmore, M. C., U. S. Navy, has been raised to the grade of rear admiral. Since April, 1953, he has been commanding officer of the U. S. Naval Hospital, Chelsea, Mass.

PUBLIC HEALTH SERVICE

Examinations for Medical Officers.—A competitive examination for appointment of medical officers to the regular corps of the U. S. Public Health Service will be held in various places throughout the country on Nov. 27, 28, 29, and 30, 1956. Appointments provide opportunities for careers in clinical medicine, research, and public health. They will be made in the ranks of assistant and senior assistant, equivalent to Navy ranks of lieutenant (j.g.) and lieutenant. Entrance pay for both grades for persons with dependents is $7,498 per year. (Assistant grade entrants are assigned the temporary grade of senior assistant.) Qualified officers are promoted at regular intervals. Benefits other than promotions include periodic pay increases, 30 days of annual leave, sick leave, medical care, disability retirement pay, regular retirement pay (three-fourths of annual basic pay at time of retirement), and other privileges. Active duty as a Public Health Service officer fulfills the obligation of Selective Service. Requirements for both ranks are U. S. citizenship, age of at least 21 years, and graduation from a recognized school of medicine. For the rank of assistant surgeon, at least seven years of collegiate and professional training and appropriate experience are needed. For senior assistant surgeon, an additional three years, or a total of at least 10 years of collegiate and professional training and appropriate experience, are required. Entrance examinations will include an interview, physical examination, and comprehensive objective examinations in the professional field. Application forms may be obtained from the Chief, Division of Personnel, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D.C. Completed application forms must be received in the division of personnel no later than Oct. 13, 1956.

National Library of Medicine.—President Eisenhower has signed a bill establishing a National Library of Medicine in the Public Health Service and transferring to it all of the functions of the Armed Forces Medical Library. In carrying out the provisions of the National Library of Medicine Act, the surgeon general will be guided by the advice and recommendations of a Board of Regents. The board will consist of seven ex officio members—the surgeons general of the Public Health Service, Army, Navy, and Air Force; the chief medical director of the department of medicine and surgery of the Veterans Administration; the assistant director for biological and medical sciences of the National Science Foundation; the Librarian of Congress; and 10 additional members appointed by the President with the consent of the Senate. The appointive members will serve four years. The exact site of the library has not been determined but will be selected by the surgeon general after consultation with the Board of Regents.

Training Grants.—The Public Health Service's National Institute of Neurological Diseases and Blindness will make funds available to medical schools to strengthen existing clinical programs in advanced training in the neurological diseases in order to stimulate the interest of more young physicians and scientists in careers as teachers and investigators. Training grants also are available to basic science departments to expand postdoctoral training programs in the neurological sciences. Further information, together with application forms, may be obtained from the Chief, Extramural Programs, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda 14, Md.

New Surgeon General.—Dr. Leroy E. Burney was sworn in on Aug. 8 for a four-year term as surgeon general of the Public Health Service, succeeding Dr. Leonard Scheele, who resigned Aug. 1. Dr. Burney is the eighth person to hold the office of surgeon general. His entire professional career has been spent in public health activities. At the time of his appointment as surgeon general, he was assistant surgeon general and deputy chief of the Bureau of State Services in the Public Health Service.

DEATHS

Zahn, Daniel W. ● Seattle; born in New York May 2, 1911; University of Glasgow Medical Faculty, Glasgow, Scotland, 1938; clinical assistant professor of medicine at University of Washington School of Medicine; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Trudeau Society; president of the Western Tuberculosis Conference and the Pacific Northwest Trudeau Society; veteran of World War II; interned at the Bellevue Hospital in New York City, where he served a residency; medical director of Firland Sanatorium; died in the Swedish Hospital May 6, aged 45, of cerebral thrombosis.

Noble, Willis Clarke, Jr., New York City; born in Peking, China, May 19, 1885; University and Bellevue Hospital Medical College, New York City, 1925; served on the faculty of his alma mater; formerly bacteriologist in charge of the division of laboratories and research of the New York State Department of Health, and assistant director of the research laboratory of the New York City Health Department; for many years supervisor of the biochemical laboratory of the Metropolitan Life Insurance Company; member of the Society of Bacteriologists, Association of Immunologists, and the Harvey Society; died in St. Clare's Hospital May 24, aged 71.

Mitchell, Myron Skupnik, Brooklyn, N. Y.; born in 1890; Universität Bern Medizinische Fakultät, Bern, Switzerland, 1916; member of the Medical Society of the State of New York and the American Academy of Dermatology and Syphilology, American Public Health Association, and the Brooklyn Academy of Medicine; medical director of the department of welfare; admitting physician at Kings County and Coney Island hospitals; a lecturer on communicable diseases for the department of health, of which he was a physician, and a physician at the Social Hygiene Clinic; died May 12, aged 66, of coronary disease.

Almes, Emanuel M. ● Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1937; interned at the Woman's Homeopathic Hospital; veteran of World War II; member of the Industrial Medical Association; associated with the Olney Hospital and Lawncrest Diagnostic Clinic; died May 24, aged 45, of carcinoma of the lungs.

Barnes, Boisey Otha, Wilson, N. C.; Meharry Medical College, Nashville, Tenn., 1932; interned at St. Agnes Hospital in Raleigh; died in the Mercy Hospital April 24, aged 53, of carcinoma of the lung.

Barnum, Francis Goodell ● Brookline, Mass.; Harvard Medical School, Boston, 1907; Boston school committee physician for 40 years and a past-president of the Society of Examining Physicians; veteran of World War I; died May 30, aged 78.

Bell, George Erick ● Wilson, N. C.; Jefferson Medical College of Philadelphia, 1921; fellow of the American College of Physicians; veteran of World War I; past-president of the Wilson County Medical Society; member of the county board of health; president of the Woodard-Herring Hospital; member of the board of trustees of the Eastern North Carolina Sanatorium and the Wake Forest (N. C.) Sanatorium; a director in the National Bank; died in Morehead City May 26, aged 63, of a heart attack.

Blakeman, Lloyd James ● Antioch, Ill.; Chicago College of Medicine and Surgery, 1917; veteran of World War I; on the staffs of the Chicago Memorial and Columbus hospitals in Chicago; died in the Michael Reese Hospital, Chicago, July 7, aged 64, of carcinoma of the bladder.

Blaney, Lilton D., Richmond, Va.; Leonard Medical School, Raleigh, 1911; died March 1, aged 81, of pernicious anemia.

Bigelow, Alice Houghton, Boston; Tufts College Medical School, Boston, 1905; member of the Massachusetts Medical Society; served on the staff of the New England Hospital, where she died May 10, aged 81, of uremia, pyelonephritis, and papillary carcinoma of the bladder.

Brace, William Morgan ● Ann Arbor, Mich.; University of Michigan Medical School, Ann Arbor, 1923; past-president of the Washtenaw County Medical Society; fellow of the American College of Physicians; veteran of World War I; assistant professor, University of Michigan School of Public Health; physician, health service, University of Michigan; died in the University of Michigan Hospital April 23, aged 61, of fibrosis of the lungs and cor pulmonale.

Bullock, Duncan Douglas ● Rowland, N. C.; Medical College of South Carolina, Charleston, 1920; served during World War II; died in the Charlotte (N. C.) Memorial Hospital April 29, aged 62, of acute myocardial infarction.

Burley, Benjamin Thomas ● Cohasset, Mass.; Harvard Medical School, Boston, 1901; specialist certified by the American Board of Psychiatry and Neurology; member of the Association for Research in Nervous and Mental Diseases; formerly practiced in Worcester, where he was consulting neurologist at the Belmont, Fairlawn, and Worcester City hospitals; consulting neurologist at the Harrington Memorial Hospital in Southbridge, Holden (Mass.) District Hospital, and Webster (Mass.) District Hospital; died in Worcester May 16, aged 81, of arteriosclerosis.

Carter, Charles W., Tacoma, Wash.; University of Oregon Medical School, Portland, 1916; died May 13, aged 74, of cardiac decompensation, and generalized arteriosclerosis.

Cifaldi, Alexis, Staten Island, N. Y.; Long Island College Hospital, Brooklyn, 1904; served on the staff of the Parkway Hospital in New York City, where he died May 29, aged 76, of cerebral hemorrhage.

Coburn, Clay Ephraim ● Kansas City, Kan.; Hahnemann Medical College of the Kansas City University, Kansas City, Mo., 1899; Kansas City (Mo.) Hahnemann Medical College, 1906; for 23 years a member of the Kansas State Board of Health, serving two terms as its president; for many years a member of the Kansas Tuberculosis and Health Association, which he served as president; veteran of World War I; died June 8, aged 83, of coronary occlusion.

Clanton, Albert Williamson ● Millport, Ala.; Mississippi Medical College, Meridian, 1907; died in the Lamar County General Hospital in Vernon May 21, aged 76.

Cope, Roscoe Ziegler, Hatfield, Pa.; Jefferson Medical College of Philadelphia, 1913; on the staff of the Grand View Hospital in Sellersville; died June 7, aged 68, of congenital heart disease.

Courtney, Robert Hull ● Richmond, Va.; Medical College of Virginia, Richmond, 1919; professor of clinical ophthalmology at his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, and the Association for Research in Ophthalmology; on the staff of the Hospital Division of the Medical College of Virginia, where he died May 23, aged 63, of acute circulatory collapse following fracture of the hip incurred in a fall.

Cox, Jane McMahan ● Lewiston, Idaho; Temple University School of Medicine, Philadelphia, 1945; interned at the Philadelphia General Hospital, where she served a residency; on the staff of St. Joseph's Hospital; died June 1, aged 48, of coronary disease.

Crone, Virgil Duane ● Beloit, Wis.; St. Louis College of Physicians and Surgeons, 1906; member and past-president of the staff at the Beloit Municipal Hospital; died June 3, aged 83, of bleeding duodenal ulcer.

Custis, Marvin A. ● Washington, D. C.; Hahnemann Medical College and Hospital of Philadelphia, 1890; president from 1935 to 1947, when he became chairman of the board of the Perpetual

● Indicates Member of the American Medical Association.

Building Association, which he had joined in 1914 as director and trustee, and later became treasurer; formerly vice-president of the Fidelity Investment Company, serving as president from 1930 to 1945; died in Gloucester, Mass., June 3, aged 89.

Davis, John Allison, Brooklyn, N. Y.; Long Island College of Medicine, Brooklyn, 1938; interned at the Wyckoff Heights Hospital; served a residency at the Carson C. Peck Memorial Hospital and St. John's Episcopal Hospital, where he died June 11, aged 48, of bronchogenic carcinoma with metastases to the brain.

Davis, Robert Allen ✱ Newport News, Va.; University of Virginia Department of Medicine, Charlottesville, 1909; member of the Radiological Society of North America; past-president of the Seaboard Medical Association and the Warwick County Medical Society; veteran of World War I; on the staffs of the Dixie Hospital in Hampton and the Riverside and Mary Immaculate hospitals; died April 29, aged 69, of coronary thrombosis.

Deer, Blan Forsythe ✱ Lake Worth, Fla.; University of Louisville (Ky.) Medical Department, 1914; member of the Indiana State Medical Association; for many years practiced in Indianapolis; died May 8, aged 68, of paralysis agitans.

Dinnison, James Andrew, Ashtabula, Ohio; Jefferson Medical College of Philadelphia, 1912; an associate member of the American Medical Association; member of the Medical Society of the State of Pennsylvania; died in the Ashtabula General Hospital April 14, aged 78, of coronary occlusion.

Doan, Edward B., Miamisburg, Ohio; Cleveland Homeopathic Medical College, 1899; for many years served on the county board of health; an honorary member of the staff of the Miami Valley Hospital in Dayton; charter member of the Miamisburg Rotary Club; formerly director of the First National Bank; died May 17, aged 87, of cancer.

Duffy, Vincent Paul ✱ Grafton, W. Va.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1917; member of the Connecticut State Medical Society; died May 3, aged 72, of cerebral hemorrhage.

Dunham, Harry Bartlett, Glendora, Calif.; Dartmouth Medical School, Hanover, N. H., 1912; died in San Bernardino June 3, aged 70.

Ewing, Edward W., Spickard, Mo.; Rush Medical College, Chicago, 1899; died May 29, aged 80.

Feitler, Alfred George, Elmhurst, N. Y.; Medizinische Fakultät der Universität, Vienna, Austria, 1905; member of the Medical Society of the State of New York; died June 6, aged 75, of carcinoma of the liver.

Ferraro, Francis Peter ✱ Pittsburgh; University of Pittsburgh School of Medicine, 1937; fellow of the International College of Surgeons and the American College of Surgeons; on the staff of St. Francis Hospital, where he died June 2, aged 43, of coronary disease.

Fink, Frank Carl, Pleasant Plains, Ill.; Washington University School of Medicine, St. Louis, 1904; died May 29, aged 75, of heart disease.

Fishman, Samuel ✱ Washington, D. C.; University of Buffalo School of Medicine, 1933; veteran of World War II; on the staffs of the Doctors and Garfield Memorial hospitals; died in Silver Spring, Md., May 30, aged 47, of coronary occlusion.

Frohwein, Ida Louise E. Haverstick, Elizabeth, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; an associate member of the American Medical Association; for many years chief physician in charge of the city's child hygiene department; died in Cranford May 27, aged 77, of cerebral thrombosis.

Garrett, Nevil McClure, Brodhead, Ky.; Louisville (Ky.) Medical College, 1897; past-president of the Rockcastle County Medical Society; member of the Kentucky State Medical Association; died March 2, aged 85, of heart disease.

Gelhaus, William John ✱ Monroe, Mich.; Ohio State University College of Medicine, Columbus, 1923; died May 30, aged 59, of coronary thrombosis.

George, William Adolph ✱ Selby, S. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1905; served on the staff of the Mobridge (S. D.) Hospital; died May 22, aged 82, of an injury incurred in a fall from his bed.

Gibans, Myer Jacob ✱ Akron, Ohio; Western Pennsylvania Medical College, Pittsburgh, 1905; member of the American Academy of Dermatology and Syphilology; formerly on the consulting staff of the Barberton (Ohio) Citizens Hospital and the Akron City Hospital; died in the Akron General Hospital May 18, aged 73, of gingival carcinoma with metastases.

Goldcamp, Edward C., Youngstown, Ohio; Jefferson Medical College, Philadelphia, 1914; specialist certified by the American Board of Otolaryngology; formerly vice-president of the Mahoning County Medical Society; served in France during World War I; on the staff of the Youngstown Hospital; died June 2, aged 65, of carcinoma of the stomach and colon.

Grady, Grover Quinton ✱ Highland Park, Ill.; Rush Medical College, Chicago, 1919; fellow of the American College of Surgeons; past-president of the Lake County Medical Society; on the staff of the Lake Forest (Ill.) Hospital and the Highland Park Hospital; died in Eagle River, Wis., June 23, aged 63.

Hearne, Charles Alfred ✱ Corpus Christi, Texas; Denver and Gross College of Medicine, Denver, 1904; a director and past-president of the Nueces County Tuberculosis Association; formerly a medical officer for the health department of the Panama Canal Zone; died May 25, aged 80, of heart disease and diabetes mellitus.

Hermann, George Fred, Cincinnati; Eclectic Medical College, Cincinnati, 1916; veteran of World War I; died May 23, aged 62, of coronary thrombosis.

Herrman, Harold C. ✱ New York City; University and Bellevue Hospital Medical College, New York City, 1920; on the staff of the Mount Sinai Hospital; died April 13, aged 59, of muscular dystrophy.

Hill, John Augustus, Allenhurst, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York City, 1894; died May 27, aged 84.

Hill, Roland ✱ St. Louis; Trinity Medical College, Toronto, Canada, 1890; member of the founders group of the American Board of Surgery; member of the Western Surgical Association, of which he was past-president; fellow of the American College of Surgeons; past-president of the St. Louis Surgical Society and the St. Louis Medical Society; consultant, Evangelical Deaconess Hospital and St. Luke's Hospital; died May 27, aged 87.

Hodgkin, Williard Edward ✱ Spokane, Wash.; College of Medical Evangelists, Loma Linda and Los Angeles, 1934; interned at the Portland (Ore.) Sanitarium and Hospital; died in St. Luke's Hospital June 4, aged 47, of coronary disease.

Hodsdon, Benjamin Franklin, Jacksonville, Fla.; Medical School of Maine, Portland, 1897; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; an associate member of the American Medical Association; member of the American Academy of Ophthalmology and Otolaryngology; past-president of the Dade County Medical Society; served on the staff of the Jackson Memorial Hospital in Miami; died May 29, aged 90, of coronary occlusion.

Horne, Frederick, Carriere, Miss.; University of Tennessee Medical Department, Nashville, Tenn., 1907; died March 2, aged 79, of arteriosclerosis.

Husted, Franklin Pitkin ✱ Bay City, Mich.; University of Michigan Medical School, Ann Arbor, 1929; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; member of the Industrial Medical Association; president-elect of the Bay County Medical Society; served five years in African and European campaigns in World War II; on the staffs of the Bay City and Mercy hospitals; died in St. Francis Hospital, Miami Beach, Fla., May 17, aged 51, of coronary thrombosis.

Jackson, Lindsay A., Fort Myers, Fla.; Cleveland Homeopathic Medical College, 1898; died May 21, aged 80.

Jackson, Nathaniel E., Laurinburg, N. C.; Leonard Medical School, Raleigh, 1907; died May 31, aged 75, of adenocarcinoma of the stomach.

Janci, Julius Sebastian ✦ Owosso, Mich.; Wayne University College of Medicine, Detroit, 1935; died May 31, aged 51.

Jellison, Robert Thompson ✦ Salt Lake City; John A. Creighton Medical College, Omaha, 1914; veteran of World War I; served on the medical staff of Kennecott Copper Corporation, Western Division, from 1915 until his retirement; for many years on the staff of St Mark's Hospital; died May 17, aged 63, of coronary occlusion.

Johnson, James White, Union Level, Va.; Baltimore Medical College, 1907; died May 31, aged 76.

Jones, Edgar A. P. ✦ Cambridge, Md.; Baltimore Medical College, 1893; formerly deputy state health officer in Dorchester County; served as a member of the state board of health, and in the Maryland legislature; on the staff of the Cambridge-Maryland Hospital; died May 27, aged 83, of arteriosclerosis.

Jones, Edward Hallaran, San Angelo, Texas; Jefferson Medical College of Philadelphia, 1912; died May 28, aged 71, of coronary thrombosis.

Jones, Ulysses Simpson Grant, Norfolk, Va.; Leonard Medical School, Raleigh, N. C., 1913; died in the Norfolk Community Hospital April 6, aged 70, of hypertensive cardiorenal syndrome.

Keisling, Frederick Carter ✦ Jacksonville, Fla.; St. Louis College of Physicians and Surgeons, 1906; on the staff of the St. Luke's Hospital; died May 18, aged 72, of hypertension.

Keller, Morris David ✦ New York City; Columbia University College of Physicians and Surgeons, New York City, 1907; died June 9, aged 72, of acute coronary artery thrombosis.

Keyes, Paul Hunt, Lakeland, Fla.; Medical College of Indiana, Indianapolis, 1901; retired in 1953 as a member of the Employees Compensation Board, Department of Labor at Washington, D. C.; died May 18, aged 75, of arteriosclerotic heart disease.

Kraft, Alfred Hartman, Aspinwall, Pa.; University of Pittsburgh School of Medicine, 1913; died March 23, aged 69, of coronary occlusion and arteriosclerosis.

Lininger, Carl Blaine ✦ Erie, Pa.; Cleveland Homeopathic Medical College, 1911; veteran of World War I; died in the Hamot Hospital May 23, aged 71, of myocardial infarction and arteriosclerosis.

McCracken, Jacob O. ✦ Montgomery, Ind.; Medical College of Indiana, Indianapolis, 1905; on the staff of the Daviess County Hospital, Washington, where he died May 12, aged 81, of carcinoma of the nasopharynx.

Massover, Alfred Jacob ✦ Chicago; Rush Medical College, Chicago, 1940; interned at Michael Reese Hospital in Chicago; formerly a resident at the Edward J. Meyer Memorial Hospital in Buffalo; veteran of World War II; on the staffs of the Grant, Alexian Brothers, and Walther Memorial hospitals in Chicago; died June 12, aged 44, of coronary thrombosis.

Mehl, Rudolph Alfred ✦ Evansville, Ind.; Emory University School of Medicine, Atlanta, 1931; on the staffs of the Protestant Deaconess and St. Mary's hospitals; died May 21, aged 50, of coronary occlusion.

Mesick, William Rodney, Rehoboth Beach, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1896; retired druggist; served as mayor; on the staff of the Beebe Hospital in Lewes; died in the Delaware Hospital, Wilmington, June 16, aged 83, of cerebral hemorrhage.

Ninde, Frederick Ward, New York City; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; an associate member of the American Medical Association; died in the Harlem Hospital May 21, aged 78, of pneumonia.

Owens, Raymond Leroy ✦ Livermore, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1925; member of the American Academy of General Practice; past-president of the San Joaquin County Medical Society; veteran of World War I; on the staff of St. Paul's Hospital; died June 4, aged 60, of arteriosclerotic cardiovascular disease.

Robertson, Stanley Barnes ✦ Detroit; Detroit College of Medicine and Surgery, 1918; on the staff of the Detroit Memorial Hospital; member of the American Academy of General Practice; died June 8, aged 64.

Thomson, George Geddes, Rockaway, N. J.; Long Island College Hospital, Brooklyn, N. Y., 1896; died in St. Clare's Hospital, Denville, June 30, aged 89, of postoperative gas bacillus infection.

Tingdale, August C. ✦ Minneapolis; Minneapolis College of Physicians and Surgeons, 1902; served as superintendent of the Minneapolis workhouse; on the staff of the Lutheran Deaconess Home and Hospital, where he died June 5, aged 83, of cerebral hemorrhage.

Tomlinson, Hubert George, Duffield, Va.; Medical College of Virginia, Richmond, 1952; interned at the Lewis-Gale Hospital in Roanoke; died in Johnston Memorial Hospital, Abingdon, April 30, aged 32, of astrocytoma.

Tower, Samuel, Brooklyn, N. Y.; General Medical College, Chicago, 1923; died in the Coney Island Hospital June 29, aged 63, of myocardial infarction.

Van Buren, Howard Gunther ✦ Hines, Ill.; University of Illinois College of Medicine, Chicago, 1950; interned at the West Suburban Hospital in Oak Park; associated with the Veterans Administration Hospital, where he served a residency; died in the Veterans Administration Hospital in Biloxi, Miss., April 6, aged 37.

Vaughan, Edward W. ✦ Port Arthur, Texas; Chicago College of Medicine and Surgery, 1910; died in Lampasas July 3, aged 76.

Vaughan, Richard Wingfield ✦ Richmond, Va.; Medical College of Virginia, Richmond, 1916; on the staffs of the Grace and Richmond Eye, Ear, Nose and Throat hospitals, and the Retreat for the Sick; died in St. Elizabeth Hospital June 30, aged 63, of a heart attack.

Vesely, F. Vaclav ✦ Lewellen, Neb.; University of Nebraska College of Medicine, Omaha, 1940; member of the American Academy of General Practice; instantly killed in an automobile accident June 8, aged 41.

Waldinger, Emanuel, Old Saybrook, Conn.; New York Homeopathic Medical College and Hospital, New York City, 1921; fellow of the American Geriatrics Society and the American Association for the Advancement of Science; died June 30, aged 58.

Warren, Thomas Francis ✦ Fall River, Mass.; Baltimore Medical College, 1905; veteran of the Spanish-American War; died July 5, aged 77.

Wheeler, James Alexander Van Vleck ✦ Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1904; vice-president of the board of directors of Fairmount Hospital; died June 29, aged 75, of carcinoma of the colon.

Wichman, August Gustav, St. Louis; Washington University School of Medicine, St. Louis, 1902; on the staffs of St. Mary's and Evangelical Deaconess hospitals; died in St. Mary's Hospital July 5, aged 76, of carcinoma of the pharynx.

Wilcox, Earl Victor ✦ Flanagan, Ill.; Chicago College of Medicine and Surgery, 1914; died in St. James Hospital, Pontiac, June 6, aged 80.

Wilkins, John Crawford, Cathedral City, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; veteran of the Spanish-American War; fellow of the International College of Surgeons and the American College of Surgeons; died June 6, aged 81.

Wilkins, John Peter, Mound, Minn.; the Hahnemann Medical College and Hospital, Chicago, 1905; veteran of the Spanish-American War; member of the school board; local health officer; surgeon for the Great Northern Railway Company; died in the Veterans Administration Hospital, Minneapolis, June 4, aged 81, of leukemia.

Wojcicki, Henry Telesfor ✦ Fairhaven, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1933; served on the staff of St. Luke's Hospital in New Bedford; died June 6, aged 53.

FOREIGN LETTERS

INDIA

Hepatic Lipids After Partial Hepatectomy.—Chatterji and Chatterjee (*Bulletin of the Calcutta School of Tropical Medicine*, April, 1956) stated that the normal liver contains about 4% total lipids as phospholipid and neutral fat in the proportion of 3:1. After partial hepatectomy there is extensive deposition of phospholipids, cholesterol, and neutral fat in the remaining portion of the liver. The authors investigated the effect of adrenalectomy on the development of fatty liver after 48 hours of partial hepatectomy. Six albino rats were subjected to bilateral adrenalectomy under anesthesia with ether. They were then put on their usual diet. Seven days later 75% of the liver was removed under anesthesia with ether from the adrenalectomized rats as well as from six normal rats. After another 48 hours all of them were killed and total lipid content of the liver at operation and at autopsy determined. The deposition of fat in the remnant of liver in adrenalectomized rats was less than that in normal rats.

Histoplasmosis.—Patients who show signs of lung infiltration but have a negative tuberculin test are frequently seen. Sen and Ghosh have studied the incidence of histoplasmosis in 4,853 such patients (*Indian Journal of Tuberculosis*, June, 1956). In addition to history and clinical examination, fluoroscopy was done and skiagrams were taken if indicated. All patients were tested with tuberculin. Simultaneously and on the same forearm, 0.1 cc. of a 1% solution of histoplasmin was injected intracutaneously. The time of reading and standard of reaction were the same as those of the tuberculin test. Sputum samples of patients who had a positive histoplasmin test were examined for Histoplasma capsulatum. Biopsy specimens of enlarged lymph nodes and skin lesions were examined for H. capsulatum in some cases. In a few cases sternal marrow aspirations were made for the same purpose. Sputum from all patients was examined for tubercle bacilli. Twenty-six of the patients had a positive histoplasmin test, 3,881 had a positive tuberculin test, 33 had a positive reaction to both tests, and 915 had a negative reaction to both. Of the 26 who reacted to histoplasmin, 14 had pulmonary calcification, 3 had pulmonary infiltration, 8 had no definite lung infiltration or calcification, and one had a large mediastinal shadow on the right side. No H. capsulatum could be isolated from any of these patients.

Imidazoline for Hemiplegia.—A. L. Annamalal reported the results of treatment of 50 hemiplegic patients with 2-benzylimidazoline hydrochloride in the *Journal of the Indian Medical Association* (July, 1956). The drug is a synthetic sympathicolytic compound with a histamine-like component and a component that is present in epinephrine. It appears to exert its action by reversing the action of adrenergic drugs and has been used extensively in the treatment of peripheral vascular disorders. The rationale of this therapy in hemiplegia is the same as that of stellate ganglion block. Intravenous injections of 10 mg. of the drug were given twice daily till there was appreciable improvement, which took about three days. Later it was given only once a day. The patient could walk after the fifth or sixth injection. Injections were continued until a total of 300 mg. had been given. This was followed by oral medication. The response was good in patients with inflammatory conditions or syphilis and in thrombosis occurring in young persons with hypertension. In patients with arteriosclerosis the response was slow but gratifying. Some of the toxic reactions and side-effects noticed were excessive salivation, profuse sweating on the paralyzed side, transient edema on the affected side, gastric irritation, and hiccup. Hiccup was the only reason for discontinuance of the drug.

The items in these letters are contributed by regular correspondents in the various foreign countries.

Liver Biopsy in Intestinal Amebiasis.—Chaudhari and Saha (*Bulletin of the Calcutta School of Tropical Medicine*, April, 1956) stated that the liver is the commonest extracolonic site of amebic infection, but the factors that cause hepatic lesions in one patient and not in another are not known. There is little correlation between the degree of clinical activity of intestinal amebiasis and the likelihood of invasion of the liver. Nutritional disturbances leading to liver damage may predispose to amebic invasion. The authors studied liver biopsy specimens from 15 patients with active amebic dysentery. The duration of the disease ranged from 15 days to eight months. On admission all but one had diarrhea with mucus and blood in the stools. Fourteen patients had had one or more attacks of dysentery in the past. Vegetative forms of Endameba histolytica were found in all patients. The liver was enlarged in nine patients, none of whom had a past history of malaria or infectious hepatitis. No specific antiamebic treatment was given in the hospital before the liver biopsy was performed. The commonest change was round cell infiltration of the periportal areas. A slight increase of portal connective tissue and patchy fibrosis were present in about half the patients. Parenchymatous degeneration of varying degree was present in eight. A few areas of focal necrosis with round cell infiltration were found in two. Four showed slight fatty changes. Brown granular pigment that did not give a positive reaction for iron was frequently present. In seven patients there were varying degrees of hyperactivity of Kupffer's cells. Repeated examinations failed to reveal amebas in any of the specimens.

Portal Circulation.—The portal venous system can be outlined by injecting a radiopaque dye through the spleen. Berry and coworkers used this technique to investigate the state of portal circulation in 18 patients (*Journal of the Association of Physicians in India*, April, 1956). A 50% iodopyracet injection was given, and liver function tests, radiological examination for esophageal varices, liver biopsy, esophagoscopy, examination of ascitic fluid when present, and measurement of intrasplenic pressure were performed. No serious untoward effects were noticed after the splenic venography; two patients vomited, and a third complained of slight pain in the left side of the chest. Splenic venography is the easiest means of diagnosis of the presence of portal hypertension and its extent and is useful in studying patients with ascites of unknown origin. It is also of use in the investigation of gastrointestinal bleeding when the cause is not obvious. It can be a useful aid in following the patient's progress after ligation of the hepatic or splenic artery for portal hypertension. It may be used prior to postcaval shunt to demonstrate the patency and size of the veins to be used for the anastomosis. It is a safe method for differentiating portal hypertension due to extrahepatic or intrahepatic obstruction. It has been used in cases of splenomegaly of unknown origin for diagnosis and for diagnosis of abdominal tumors. It may be used in diagnosing congenital anomalies of the portal venous system and metastases in the liver. Involvement of splenic or portal veins in carcinoma of the head of the pancreas may be demonstrated preoperatively by its use. It may be of value in the prognosis of portal cirrhosis. Demonstration of a normal intrahepatic pattern of the portal tree should help in the differential diagnosis of hepatic enlargements of unknown origin. The method is safe, useful, and reliable.

Changes in Renal Glomeruli in Eclampsia.—G. P. Sharma in *Journal of the Indian Medical Association* for June 16, 1956, reported a study of the kidneys of two patients who died of eclampsia. The basement membrane of the glomerular capillary walls was not thickened. Thickening of the capillary wall in this disease is due to swelling of cytoplasmic extensions of the epithelial cells and of the endothelial cells along both surfaces of the basement membrane. Ischemia is due to occlusion of the lumens of the capillaries by excessive swelling of the endothelial cells. The development in the capillary lumens of fibrils similar to those found in diffuse glomerulonephritis has been described.

renal failure in eclampsia appears to be due to swelling of both the endothelial and epithelial cells of the glomerular capillary loops and subsequent glomerular ischemia and diminished filtration. Proteinuria in eclampsia appears to be the result of hypoxic or anoxic damage of the capillary walls.

PERU

Treatment of Fleshy Moles.—Dr. Bazul favors active treatment of fleshy moles, as it averts hemorrhage and septicemia. He reports a series of 14 patients treated by means of curettage and pituitary extract (*Ginecologia y obstetricia*, volume 2, number 1, 1956). As soon as the diagnosis is made, therapeutic abortion should be attempted. If the metrorrhagia is copious, a suitable dilatation with Heger's dilators must be attained prior to curettage. If abortion has already started, it must be allowed to proceed unimpeded, and, when completed, 24 hours must elapse before performing curettage, though oxytocic drugs may be given in the meantime to strengthen the uterine walls. A similar approach should be adopted for incomplete abortion with mild hemorrhage, but, if the miscarriage is accompanied by severe hemorrhage, it is preferable to stimulate the uterine muscular contractions with posterior pituitary injection given parenterally as well as manual expression, since both these procedures favor the expulsion of the moles, reduce the capacity of the uterus, and permit the ultimate performance of curettage. Curets and placental forceps must be used with the utmost caution due to the danger of perforating the uterus. In the present series, toxemia of pregnancy was a predominant feature in five patients. In the remainder the chief symptom was profuse hemorrhage with resultant severe anemia, which in one patient was fatal. In a follow-up period of at least two years, no choriocarcinoma developed.

Endometrial Hyperplasia.—In the same issue of *Ginecologia y obstetricia*, Dr. Gordillo Delboy states that it is not possible to show a causative relationship between the different grades of endometrial hyperplasia and uterine adenocarcinoma. He reviewed 1,087 endometrial smears and 642 clinical records and concluded that no definite relationship existed between the grade of hyperplasia and the age of the patient. Although most patients were between the ages of 35 and 50, a few were just starting to menstruate and a slightly larger group had passed the menopause. The less severe grades of hyperplasia were by far the commonest. Women with endometrial changes usually have atypical menses and ill-defined menstrual cycles, especially if the hyperplasia is of advanced grade. In the author's series only 5.76% of the women had normal menses, and in none was the duration of the menses shorter than 10 days. There was no significant relationship between infertility, abortion, and dysmenorrhea and hyperplasia of any grade. In 150 women the endometrial hyperplasia followed infertility, and in 98 both were of the same duration. Dysmenorrhea was complained of by 44.28% of the women.

In this series 166 women had suffered at some time from varying gynecologic disorders, 80 from general diseases, 43 from endocrinopathies, and 8 from psychoneurotic disturbances, but there was no relationship between any of these conditions and the grades of hyperplasia. Histologically the pattern shown by the nuclear chromatin is the most characteristic feature, regardless of the grade of hyperplasia, and reflects marked estrogenic stimulations. In 17% of the patients a secretory-granular endometrial picture was observed along with the abnormal proliferative findings typical of the hyperplasia. This was probably produced by the luteinizing factor released by the hypophysis due to an excess of estrogens arresting the production of follicle-stimulating hormone.

Latent Genital Tuberculosis.—Peru is passing through a period of mass tuberculization, mainly in its cities. The mortality rate for the whole country is about 3%. Campaigns aimed at increasing the early diagnosis of the disease are being initiated. Dr. Ascenzo Cabello, in the same issue of *Ginecologia y obstetricia*, states that the diagnosis of genital tuberculosis in women has been neglected, most of the cases being missed. The author found 9 patients with latent genital tuberculosis in a group of 110 private patients who complained of sterility. Partial or total tubal obstruction with neither previous history of gonorrhea nor inflammatory antecedents was found in eight of the nine persons with detected cases. Hypermenorrhea was noticed by four and either amenorrhea or oligomenorrhea by three of the patients. Tuberculosis in organs other than the genitals was found in three and genital hypoplasia in two. Biopsy of the endometrium is the best procedure for the diagnosis of the condition. In all the patients medical management and psychotherapy were started soon after the diagnosis was made, and 37 also underwent operation, but none were able to become pregnant. Although histological findings in the endometrium returned to normal in four of the five patients who were followed, they remained under close medical supervision, as a negative biopsy does not rule out the existence of active lesions.

New Naval Hospital.—A new naval hospital, opened in July, is located between Lima and Callao and was built along lines similar to those of the American Naval Hospital in Beaufort, Calif. Its anchor-shaped building has a five-story main body with two three-story wings and a total capacity of 302 beds, but, when future expansions are completed, it will accommodate 722 patients. Rear admirals Milton E. Miles, representing the Department of Naval Operations, Charles W. Wilkins, director of Pan-American affairs in the same department, and Bartholomew W. Hogan, chief of the Bureau of Medicine and Surgery, all of the U. S. Navy, attended the opening ceremonies.

UNITED KINGDOM

Home Care and Nursing.—Dr. G. E. Godber, in a symposium in the July issue of *The Practitioner*, points out that the health service depends primarily on comprehensive home care, with hospital and specialist services only for diagnosis and treatment of illness outside the scope of the family physician and his supporting team. It should not be regarded as a service for hospital inpatients supported by facilities for home care. He draws attention to the fact that in England and Wales the hospital admission rate per 1,000 of population in 1952 was only 77.7, compared with 118.5 in Sweden and 106 in Denmark. This disparity is attributed, in part, to the greater range of home care made possible by the assistance a highly developed outpatient service can give to the family physician and his supporting team. The growth of consultative outpatient work is the most striking development in hospital services since the end of the war. Outpatient services are now more rigidly restricted to their proper consultative functions, and their further development has provided consultation in the patient's home when medical considerations forbid transport to the hospital. One person in every 12 is admitted to the hospital each year, and nearly one person in every 6 attends the hospital outpatient service; but family physicians see each of their patients on an average five times a year, home nurses make one visit for every 2 members of the population, and health visitors make one visit for every 4. On any given weekday, of every 1,000 persons, 10 will be in the hospital, 3 will have attended the outpatient clinics, 16 will have seen their family physician, and 3 will have been visited by a home nurse or health visitor. Home care depends primarily on wives, mothers, and daughters, not on physicians and nurses, whose function is to supplement, not to replace, the contribution of the family. The scope of home care is determined as much by the capacity of the family as by medical considerations.

In the past 25 years there has been a steady decrease in the proportion of home confinements, until now it is little more than 33% of the total number. Although the official policy has been to maintain a domiciliary midwifery service insofar as medical and social conditions permit, in London less than a quarter, and in some towns barely a tenth, of the births occur at home.

Home-Care Project.—Dr. Reginald Lightwood gives an account of the St. Mary's home-care project, which was instituted in April, 1954. The primary aim was to enable the hospital staff to cooperate more closely with family physicians by giving them professional support and by providing a diagnostic and therapeutic service. By such arrangements, the family physician can share in the clinical responsibility without losing it, and he is also kept in touch with current hospital practice. The second aim

was the avoidance of admission of children to the hospital except when necessary. At St. Mary's Hospital, before the home-care project started, it was estimated that 25% of the children in the hospital could have been treated at home if the family physicians had had the facilities and experience required, and there were other children whose stay could have been shortened. The third aim was to cut the high cost of inpatient treatment by providing a cheaper alternative that nevertheless afforded a standard of care as high as that in a hospital ward.

The basic feature of the project is a mobile team, based at the hospital, and consisting of pediatricians and nurses with pediatric training. When a family physician wants the help of the team, he telephones the home-care office at the hospital, and one of the pediatricians goes with him to the patient's home. If it is found that the child does not need inpatient treatment, specimens are collected for any necessary tests, and treatment is started at once. The results of the tests are reported to the family physician promptly, and he remains in charge of the patient, the team being at his disposal if needed. The nurse, responsible for organizing the work of her two colleagues, attends the consultation and can then see what nursing care will be required. Any necessary equipment can be brought from the hospital to the home. A home-care project such as this is likely to be more valuable in an urban area than in a more sparsely populated one. Most of the visits have been made within an area of two miles from the hospital. The staff can comfortably handle a case load of 25 to 30 children, and during the initial period of two years their help has been given in the treatment of 582 children. Most of the patients have been referred by family physicians. A smaller number have been transferred from hospital to home care for the completion of treatment, and a few have come from casualty and outpatient departments after the family physician has been consulted. The technique of home care is suitable for most nonsurgical conditions met with in a children's ward, digestive disorders and feeding disturbances in infants, most of the ordinary infectious diseases, and many types of chronic illnesses, including certain cases of tuberculosis.

Care of Maladjusted Children.—Prof. W. S. Craig, writing on home care of the maladjusted child, states that children of all ages cause parental anxiety because of behavior disorders that have no organic basis and arise from maladjustment within the household. To designate these children as maladjusted is misleading, because it ignores the real source of the trouble. Craig's article consists of a review of his findings in a study of 200 children between 3 and 14 years of age. Unhappiness of long duration was characteristic of most of the households. In 31 households tension could be traced to exhaustion of the mother resulting from combining outside employment and domestic duties. When both parents were working, home had little significance to many children beyond that of a place to sleep. A number of other examples were encountered of children who knew little of satisfying home life and still less of true maternal love because of the mother's absorption in social activities. Two distressing cases concerned children whose fathers were ministers and whose mothers undertook an inordinate amount of parochial work in addition to household duties although handicapped by lack of domestic help and financial resources. A nursemaid or more often a series of nursemaids is not an adequate substitute for an absent mother in homes more economically favored. Management of these cases consists largely and sometimes solely in rectifying influences within the home—influences that the family physician is in a position to recognize and often to remedy.

Feeding Habits of Tsetse Flies.—The annual report of the Lister Institute of Preventive Medicine for 1955-1956 includes a study of the natural feeding habits of tsetse flies. The blood meals of about 2,000 flies caught in 17 different localities in the Sudan, Uganda, Tanganyika, Kenya, and Southern Rhodesia were identified serologically. The species studied were Glossina morsitans, G. swynnertoni, G. pallidipes, G. palpalis, G. brevipalpis, G. austeni, and G. longipennis. Each species has characteristic feeding habits; in some instances these were due to differences in habitat. Thus, the riverine G. palpalis feeds largely on reptiles, although it feeds also on birds and on some of the mammals that come to drink at the water edge. The savannah species (G. morsitans and G. swynnertoni) depend on the wart hog for half their food supply, which is surprising, since it was thought that ruminants were their main source of food. Other mammals such as rhinoceros and elephant are commonly used by the flies, whereas monkeys, baboons, and birds are not often used. G. pallidipes feeds chiefly on bushbuck. In Zanzibar, the main host of G. austeni was the bushpig, which is an interesting finding, as this fly is a crepuscular feeder and the bushpig a creature of nocturnal habits. None of the tsetse flies fed on hartebeest, topi, wildebeest, or zebra, though in some localities the hartebeest and zebra were numerous and readily available to the flies. Similarly, impala, thought to be the main source of food, provided only 0.8% of the feedings of G. morsitans, although there were numerous large herds in the neighborhood.

Health Control Regulations.—As a result of recent administrative arrangements, the seven member states of the Western European Union now form a single territory for health control of sea and air traffic. This is an extension of the scheme operated by the five-power Brussels Treaty Organization. Under the new arrangements, health control regulations at airports no longer apply to aircraft coming from airports of any of the member countries. On the other hand, each country may apply to an aircraft arriving from outside the Union any measures of health control it considers appropriate. In the case of sea traffic, the Maritime Declaration of Health is no longer required from member countries' vessels plying only between those ports of the seven countries included in the scheme.

Automobiles and Air Pollution.—At a meeting of the Royal Society of Health, Dr. Arnold Fitton of the Fuel Research Station reported that in 1954 the amounts of smoke, sulfur dioxide, and carbon monoxide discharged from the use of 5.9 metric tons of gasoline and 1.4 metric tons of diesel oil in road vehicles were 0.015, 0.02, and 4 metric tons of diesel oil in road corresponding figures for the 200 metric tons of coal burned were 2, 3, and 20. Thus, the total air pollution by exhaust gases was small compared with that by coal-burning, but the former was emitted in the street at a low level and had, therefore, little time for dispersal before being inhaled. The greatest difference between gasoline and diesel engines was in the carbon monoxide content, which was about 4% in the former and 0.1% in the latter. In gasoline-driven vehicles, the carbon monoxide content was at a maximum when the motor was idling. Practically no benzpyrene was detected at gasoline engine loads exceeding 50%, and in efficiently run diesel engines only a trace was found. As long-term methods of reducing pollution from exhaust gases, control of the air-fuel ratio to give complete combustion; catalytic or direct combustion of exhaust gases; better combustion chamber design; use of filters, absorbers, and adsorbers; and better dispersion of exhaust were recommended.

Dr. E. T. Wilkins of the Fuel Research Station stated that, compared with the three polluants, grit, smoke, and sulfur, which amounted to 1, 2 and 3 metric tons, respectively, each year, carbon monoxide pollution totaled about 24 metric tons, of which 10 were from industrial chimneys, 10 from domestic appliances, and 4 from automobile exhausts. The average concentration of carbon monoxide in the air of the streets of London in 1953 was 13 ppm, the highest figures being obtained in Oxford Circus and Regent Street (52 and 40 ppm respectively). In the smog of January, 1956, the figure rose to 50 ppm in London, but in Salford, Lancashire, it rose to 80 ppm. In streets there is a steady decrease in concentration with increasing height to about one-third of the ground level rate at 100 ft. Assessments of the toxicity of carbon monoxide at various concentrations varied. On the average, a pedestrian may experience a just perceptible effect after exposure of four to eight hours to a concentration of 50 ppm. At 100 ppm there would be slight headache and shortness of breath after two or three hours. In view of the marked individual variation, the hazard of air pollution in our streets should be assessed from the reaction of the more susceptible persons.

Dr. Burgess, chief chemist to the London County Council, reported concentrations of up to 460 ppm of carbon monoxide in the Blackwall and Rotherhithe Tunnels. Dr. Lather, of the Medical Research Council, reported that an analysis of the air breathed by people working in close proximity to the source of gas emission in a London transit garage containing 230 diesel buses had failed to show any increase in the benzpyrene content as compared with the air outside.

CORRESPONDENCE

FOCAL EMPHYSEMA

To the Editor:—The description of "focal emphysema" as a distinct pathological entity in coal workers is associated with the Welsh National School of Medicine. The existence of this form of emphysema, characteristic of the simple dust lesion in coal workers, has been confirmed by a number of pathologists in different countries. Your correspondents, Drs. Mayer, Rappaport, and Schepers (*J. A. M. A.* **160**:230 [Jan. 21] 1956), are the only ones we have encountered who have misinterpreted our descriptions (Gough, J.: *J. Path. & Bact.* **51**:277, 1940; Report of Advisory Committee on Treatment and Rehabilitation of Miners in Wales Region Suffering from Pneumoconiosis, London, His Majesty's Stationery Office, 1944, p. 17; *Occup. Med.* **4**:86, 1947. Heppleston, A. G.: *J. Path. & Bact.* **59**:453, 1947; *A. M. A. Arch. Indust. Hyg.* **4**:270 [Sept.] 1951; *J. Path. & Bact.* **66**:235, 1953; ibid. **67**:51, 1954) and those of Williams (Report of Advisory Committee on Treatment and Rehabilitation of Miners in Wales Region Suffering from Pneumoconiosos, London, His Majesty's Stationery Office, 1944, p. 18), to which, however, they make no specific reference.

Emphysema is a term implying enlargement of air-containing spaces or inflation due to the presence of air. We are not concerned here with interstitial emphysema of the lung. Pulmonary emphysema may affect all segments of the bronchiolar tree bearing alveoli, including respiratory bronchioles. As original observers, we are entitled to our definition of focal emphysema as "a group of dilated respiratory bronchioles occurring in and around a focus of dust such as coal." French pathologists, confirming our work, make a slight alteration and use the term *emphysème perifocal*. This implies that the dilated air passages are limited to the periphery of the dust focus, and we therefore prefer our original term, since enlarged airways also occur within the focus of dust. If there is no dust focus, then, by our definition and descriptions, the condition is not focal emphysema. Focal emphysema is not restricted to coal workers but occurs in hematite, graphite, and foundry workers and also after inhalation of purified carbon. The fully formed classic silicotic nodule, although it develops at the same site as the coal dust lesion, is not associated with focal emphysema as defined above. The fibrosis of the simple silicotic nodule surrounds and constricts respiratory bronchioles (Heppleston, A. G.: *J. Path. & Bact.* **66**:235, 1953. Simson, F. W.: ibid. **40**:37, 1935). The air spaces around some silicotic nodules, however, may be somewhat enlarged, but these spaces develop from various segments of the airway and represent a vicarious emphysema such as may occur around any pulmonary scar as it contracts. It is this localized form of vicarious emphysema that Kuschner (*A. M. A. Arch. Indust. Health* **13**:147 [Feb.] 1956) describes as focal emphysema. Such an application of the term appears to be uncommon. In Europe the term focal emphysema is now used in the specific sense, and it would be of obvious advantage if such usage were universal. The term focal emphysema does not appear in Dorland's American Illustrated Medical Dictionary, so it can justifiably be used specifically in the United States.

Mayer, Rappaport, and Schepers consider that inhaled dust may cause other forms of emphysema than the focal variety. Anatomic studies in man (Heppleston, A. G.: *J. Path. & Bact.* **66**:235, 1953) reveal that nonindustrial generalized vesicular emphysema, whether in older persons or not, is characterized by enlargement of alveolar ducts and alveolar sacs at the expense of alveolar spaces. These changes occur in the absence of dust, and respiratory bronchioles are little, if at all, involved. Generalized vesicular emphysema sometimes coexists with focal emphysema, but this association does not necessarily mean a common causation. Localized destruction of lung tissue occurs in some cases of generalized vesicular emphysema, giving rise to bullae, that is, spaces from which parenchyma has disappeared and into which air passages open irregularly. Whether the generalized form of emphysema is commoner in industrial workers than in the rest of the population has not been proved, but the question certainly merits inquiry.

There is, moreover, another nonindustrial emphysematous state from which focal emphysema must be distinguished, namely, centrilobular emphysema (Gough, J.; Fletcher, C. M.; Gibson, J. C., and Oldham, P. D.: *Proc. Roy. Soc. Med.* **45**:576, 1952). In this condition groups of dilated respiratory bronchioles, usually the more distal orders (Leopold, J. G.: Personal communication to the authors), occur toward the centers of secondary lobules, whereas generalized vesicular emphysema affects alveolar ducts and alveolar sacs (Heppleston, A. G.: *J. Path. & Bact.* **66**:235, 1953). Centrilobular emphysema is not necessarily associated with dust collection, occurring in both miners and the nonindustrial population, but it is associated with chronic inflammation of parent nonrespiratory or respiratory bronchioles (Leopold, J. G.: Personal communication to the authors. Spain, D. M., and Kaufmann, G.: *Am. Rev. Tuberc.* **68**:24, 1953). The chronic bronchiolitis is most likely the primary change. A distinction must also be drawn between focal emphysema and small tension cysts of the lung (Heppleston, A. G.: *J. Path. & Bact.* **66**:235, 1953). Schepers (*A. M. A. Arch. Indust. Health* **13**:306 [Sept.] 1955) has produced in guinea pigs a condition that may correspond with centrilobular emphysema and has mistakenly called it focal emphysema. He has, furthermore, produced this change by a highly artificial method, namely, by exposure to an aerosol of rare earth fluorides. It is quite unjustifiable to interpret the changes in the lungs of coal workers on the basis of these experiments, the conditions of which cannot be considered as remotely similar to the working environment in coal mines. A much more rational experimental approach is to expose animals in coal mines to the same atmosphere as is breathed by the miners. By this method it has proved possible to demonstrate the evolution of focal emphysema after the formation of coal dust foci (Heppleston, A. G.: *J. Path. & Bact.* **67**:349, 1954).

Schepers has written to one of us (A. G. H.) suggesting that in coal miners emphysema occurs first and then coal dust is deposited between the emphysematous spaces. Our studies on the pathogenesis of coal dust pneumonoconiosis in man (Heppleston, A. G.: *J. Path. & Bact.* **59**:953, 1947; ibid. **66**:235, 1953; ibid. **67**:51, 1954) and in animals (Heppleston, A. G.: *J. Path. & Bact.* **67**:349, 1954) are strongly opposed to this view. Furthermore, we have available for examination, by anyone who wishes, whole lung sections from thousands of coal workers of ages ranging from 17 to 80 years. The young miners show collections of dust with no emphysema. As the age increases, the incidence of focal emphysema increases also. There is no doubt that the formation of dust foci precedes the development of focal emphysema.

We agree with your correspondents that the degree of clinical and physiological disability in simple pneumonoconiosis does not correlate with the radiological appearances. This is only to be expected in coal workers and similar employees, since the radiological opacities reflect the presence of dust foci and may give no indication of either the existence or the degree of focal emphysema or of generalized vesicular emphysema (Gough, J.; James,

W. R. L., and Wentworth, J. E.: *J. Fac. Radiologists* 1:28, 1949). Cases of pneumonoconiosis are frequently classified on the basis of their radiological features for diagnostic and investigatory purposes. There is, however, a growing opinion in Great Britain that respiratory disability developing in coal workers is not proportional to the radiological changes and may be present with a normal chest radiograph (Chest Radiography in Pneumonoconiosis, *Lancet* 1:326, 1956. Gilson, J. C., and Hugh-Jones, P.: Lung Function in Coalworkers' Pneumonoconiosis, Medical Research Council Special Report Series no. 290, 1955).

Your correspondents' letter arose from an editorial by Dr. O. A. Sander (*J. A. M. A.* 158:1526 [Aug. 27] 1955). Regarding focal emphysema, Sander asked why it occurred in coal workers, hematite miners, foundry workers, and Kolar gold miners but not in the siderosis of welders. We believe that focal emphysema is due to mechanical overloading of the lung with relatively inert dust and therefore that a comparison of the quantity of dust in the different occupations should be made. Sander apparently has access to cases of siderosis, and it would be of value if he could determine the weight of iron oxide in these lungs to see whether it compares quantitatively with 30 gm. or more of coal dust often found in colliers' lungs showing simple pneumonoconiosis. In the patients with tin oxide pneumonoconiosis whom we have examined, the degree of focal emphysema is slight but the weight of dust in the lungs is less than one-fiftieth of that found in coal workers with well-marked simple pneumonoconiosis. Dr. G. Nagelschmidt has drawn our attention to the great difference in the quantity of dust in different forms of pneumonoconiosis. Compared with coal, a small amount of iron and an even smaller amount of tin will give rise to similar radiopacity. We recognized that the amount of dust is not the only factor in the genesis of focal emphysema. The degree to which the smooth muscle of the respiratory bronchioles is developed and the extent to which dust accumulation interferes with muscular action will also influence the severity of focal emphysema (Heppleston, A. G.: *J. Path. & Bact.* 67:51, 1954). Sander pleads for the study of emphysema by a third dimensional technique. We support him and would emphasize that many of our results are based upon the extensive use of serial sections (Heppleston, A. G.: *J. Path. & Bact.* 66:235, 1953; ibid. 67:349, 1954. Leopold, J. G.: Personal communication to the authors); from them a cinephotographic technique has been evolved to demonstrate the lung changes in depth (Heppleston, A. G.: *Lab. Invest.* 4:374, 1955).

J. Gough, M.D.
A. G. Heppleston, M.D.
Welsh National School of Medicine
Institute of Pathology
Cardiff, United Kingdom.

BASAL METABOLIC RATE

To the Editor:—During the past 17 years we have done several thousand pulmonary function studies by spirometric methods and with these we have obtained as many determinations of the basal metabolic rate. Again and again we have noticed the tendency of the basal metabolic rate to be low when calculated by the "accepted" standards. What are the accepted standards? At present there are three slightly different standards in use: the Aub and DuBois standards (1917), modified by Boothby and Sandiford (1929); the Harris and Benedict standards (1919); and the Mayo Clinic standards of Boothby, Berkson, and Dunn (1936). The normal basal metabolic rate is usually considered to range from −10 to +10% when compared with any of these standards.

Observations similar to ours have been made before. DuBois and Chambers (*J. A. M. A.* 119:1183 [Aug. 8] 1942) found that the old standards were too high and that rates in most normal persons come within +5 and −20% of the so-called standard. Keys (*J. A. M. A.* 142:333 [Feb. 4] 1950) says: "The excellent basal metabolism standards of the Mayo Clinic [Boothby, Berkson, and Dunn] overestimate the true basal metabolism by something like 10 per cent." Robertson and Reid (*Lancet* 1:940, 1952) state: "It became apparent that either the standards of Aub and DuBois were too high for people in this country, or that there were some differences in technique in measuring the BMR or both." These authors found the standards for normal people in England to be 10% less than the Boothby-Sandiford standards of 1929 and 9% less than the Mayo Clinic normal standards of 1936. In spite of these observations, most textbooks still accept the old standards. Best and Taylor (Physiological Basis of Medical Practice, ed. 6, Baltimore, Williams & Wilkins Company, 1955) refer to Boothby and Sandiford (1920) and to Boothby (1924). Wakefield (Clinical Diagnosis, New York, Appleton-Century-Crofts, 1955) quotes the standards of Boothby and Sandiford (1924). West and Todd (Textbook of Biochemistry, New York, the Macmillan Company, 1951) refer to the standard values of Boothby, Berkson, and Dunn (1936). Fulton (Textbook of Physiology, ed. 16, Philadelphia, W. B. Saunders Company, 1950) accepts the DuBois normal standards as modified by Boothby and Sandiford. Bray (Clinical Laboratory Methods, St. Louis, C. V. Mosby Company, 1951) reproduces the DuBois normal standards as modified by Boothby and Sandiford. This is only a small example of a large number of books that can be quoted.

The basal metabolism test apparatus used in the United States are supplied with "normal standards," mostly the standards of 1936. But different companies recommend various standards—differing by a small percentage from each other—for their machines. In summary we wish to say that the old basal metabolism standards are too high and different standards are used in different laboratories. We would like to make a plea for establishing new standards that can and should be used with every basal metabolism test apparatus in every laboratory.

George C. Leiner, M.D.
Consultant in Pulmonary Physiology
Sol Abramowitz
Chief, Cardio-Pulmonary Laboratory
Veterans Administration Hospital
East Orange, N. J.

SALICYLATES AND URINARY CALCULI

To the Editor:—On the basis of recently published reports (Prien, E.L., and Walker, B.S.: Salicylate Therapy of Recurrent Calcium Urolithiasis, *New England J. Med.* 253:446-451 [Sept. 15] 1955; Salicylamide and Acetylsalicylic Acid in Recurrent Urolithiasis, *J.A.M.A.* 160:355-360 [Feb. 4] 1956), various drug companies are currently conducting an extensive mail campaign advertising their particular brand of salicylates for prevention and treatment of urinary calculi. It should be pointed out that this group of drugs was recommended for use only in the presence of calcium-containing calculi. Their use in the management of patients with recurrent uric acid calculi is contraindicated because of the well-known property of salicylates to increase the urinary excretion of uric acid. Before beginning salicylate therapy, every effort should be made, including stone analysis, to determine the chemical nature of the calculi being formed.

Jack Hughes, M.D.
1200 Broad St.
Durham, N. C.
Claude L. Yarbro
Department of Biochemistry
University of North Carolina
School of Medicine
Chapel Hill, N. C.

TREATMENT OF HERPES ZOSTER

To the Editor:—The treatment of herpes zoster has a perennial popularity in medical writings. Because it is a disease that subsides spontaneously and because its duration may vary from several days to a number of weeks in different patients, the response to a therapeutic agent is difficult to assess. In recent textbooks (Blank, H., and Rake, G.: Viral and Rickettsial Diseases of the Skin, Eye and Mucous Membranes of Man, Boston, Little, Brown & Company, 1955) it has been pointed out that, as with other viral diseases, no specific effective treatment exists. Van Blaricom and Horrax (Chronic Postherpetic Neuralgia, *J. A. M. A.* **161**:511 [June 9] 1956) in their recent article have effectively emphasized the variable results to be expected in treating postherpetic neuralgia with even the most modern forms of neurosurgery. All would agree with their suggestion that prevention of the neuralgia by effective treatment during the acute stage of the herpes zoster would be most desirable. As indicated, however, no such treatment is known, and their admonition to use Aureomycin, Chloromycetin, and Pituitrin is contradicted by available evidence. In all of the series of patients reported it has been impossible to show that any therapeutic agent was effective when results were compared with use of a placebo in a properly controlled study. Because this is a point worthy of emphasis to the profession, several pertinent reports are summarized in the accompanying table.

Summary of Reports on Effect of Therapeutic Agents in Treatment of Herpes Zoster

Authors	Drugs	Controls	No. of Patients	Conclusions
Schaffer and Svendsen: Acta dermat.-venereol. **32**:184, 1952.	Aureomycin Chloromycetin	Lactose capsules	46	"No difference in the course of the disease in the experimental and control group, neither with regard to the duration of the skin lesion nor the neuralgias"
Kass, Aycock, and Finland: New England J. Med. **246**:167, 1952.	Aureomycin Chloramphenicol	Empirin compound	72	"No measurable effect of the use of Aureomycin or chloramphenicol as compared with the use of a simple analgesic"
Carter: Brit. M. J. **1**:387, 1951.	Aureomycin	Glucose capsules	44	"No significant difference between the groups in respect of pain, paresthesias, or the appearance of fresh herpetic lesions"
Simons: Dermatologica **103**:109, 1951.	Pituitrin	Saline injections	57	"The spontaneous healing could hardly be influenced by injections of saline, antiphyretics, or hypophysis extracts"

HARVEY BLANK, M.D.
Professor of Dermatology
University of Miami
School of Medicine
Miami 36, Fla.

MEPROBAMATE

To the Editor:—With regard to reactions to meprobamate (Kositchek, R. J.: Reactions to Meprobamate, Correspondence Section, *J. A. M. A.* **161**:644 [June 16] 1956), my colleague and I have now given this drug to more than 200 patients, including the prerelease testing that we were asked to do. We found absolutely no toxic adverse effects, except dizziness in some patients, when 400 mg. was used as a dose. We therefore now prescribe 200 mg. (½ tablet) to be taken after meals and before bedtime. We have never found erythema in our patients. However, we are not under any delusion on this score; we will probably get our 2% of reactions all at one time. There is hardly a useful drug on the market that does not give this small percentage of reactions. The author of the letter dramatically states that all types of antihistamines were prescribed but to no avail. I hope this sentence is merely a figure of speech, because one wonders how many types of antihistamines can be tried in 24 hours. The latest report I have come across on meprobamate is by Thimann and Gauthier (*Quart. J. Stud. Alcohol* **17**:19-23 [March] 1956). These authors emphatically state that this drug was found essentially nontoxic and that its continued use did not result in habituation or addiction. Lowell S. Selling (*J. A. M. A.* **157**: 1954-1956 [April 30] 1955) reported three urticarial reactions in 187 patients. Patients with these reactions responded very well to treatment with antihistamines and the discontinuance of meprobamate therapy.

LOUIS PELNER, M.D.
1352 Carroll St.
Brooklyn 13, N. Y.

BRUCELLOSIS

To the Editor:—In the article "Chronic Localized Pulmonary Brucellosis," by Weed, Sloss, and Clagett (*J. A. M. A.* **161**:1044 [July 14] 1956), it was stated that "modern reviews do not mention this manifestation of brucellosis," with a reference to the first edition of my book "Brucellosis (Undulant Fever): Clinical and Subclinical" (New York, Paul B. Hoeber, Inc., 1941). The subject of pulmonary lesions in brucellosis, including nodular granulomas, was covered quite extensively in the second edition of this monograph, published in 1950 (pages 105-107 and 162-172).

HAROLD J. HARRIS
25 Fifth Ave.
New York 3.

POLIOMYELITIS IN THE UNITED KINGDOM

To the Editor:—My attention has been drawn to the figures of poliomyelitis notifications and deaths quoted in the passage commencing "Increase in Poliomyelitis," in Foreign Letters, on page 1351 of THE JOURNAL, April 14, 1956. These figures have apparently been taken from the Registrar General's Weekly Return, no. 52, 1955, and are the total numbers of uncorrected notifications and of deaths in the Great Towns during the 52 weeks of 1953, 1954, and 1955. Naturally they differ considerably from the final figures for England and Wales as a whole.

W. P. D. LOGAN, M.D.
Chief Medical Statistician
General Register Office
Somerset House
London, W. C. 2, England.

MUSEUMS OF INTEREST TO PHYSICIANS

To the Editor:—The letters of Drs. Stenn (**160**:1090) and Gebhard (**161**:643), published in THE JOURNAL in the issues of March 24 and June 16, both failed to mention the Museum of the History of Science at Florence. In spite of the fact that it is just around the corner from the Uffizi Gallery, very few people seem to know about it. The museum has many of Galileo's mathematical instruments and, among other things, a considerable collection of medieval surgical and dental instruments.

JUNIUS P. SMITH, M.D.
Box 566
Poultney, Vt.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice: Doctrine of Res Ipsa Loquitur Applicable to Dentists.—This was an action for damages for injuries alleged to have been caused by the negligence of the defendant dentist during and after the extraction of a wisdom tooth. From a judgment in favor of the dentist, the plaintiff appealed to the court of appeals of Kentucky.

The plaintiff, suffering severe pain from a wisdom tooth, accompanied by great swelling, went to the defendant dentist for relief. The defendant took an x-ray, determined the position of the tooth, and proceeded to extract it, after injecting Novocain to relieve the pain. In the process the tooth shattered, but the defendant removed the splinters, packed the cavity with medicated gauze, and gave the patient a sedative. For the next three days, the plaintiff went back to the defendant and complained of much pain in the socket, which eventually spread to the arm. At the end of the third day, the plaintiff said, the defendant told him that he did not want to fool with it any more and that he was through with the case. Three weeks later, the plaintiff went to another dentist, who took an x-ray and discovered a piece of the broken tooth, about the size of the head of a kitchen match, embedded in the jaw. This dentist removed the fragment, and the plaintiff subsequently recovered from his disability.

The only bit of the plaintiff's evidence that was contradicted by the defendant was that the defendant insisted that the plaintiff's jaw was not swollen. All the rest of it stands admitted, said the court, and the plaintiff well proved the condition of his jaw before the extraction and after. The defendant testified that he had pursued the proper course and the customary practice for routine extractions, which he regarded this one to be. He testified, "If you break a root, most of the time you feel it or you hear it." He had not felt or heard any breaking of this patient's tooth. The trial court directed the verdict for the defendant at the close of the plaintiff's case on the grounds that no dentist testified that pulling a tooth, even where there is a swollen condition, was improper medical practice and that, on the contrary, the defendant's professional testimony was that he had pursued the proper practice.

Several of our opinions, said the court of appeals, contain the broad statement that "in malpractice suits against dentists such proof can only be established by the testimony of experts skilled in the dental profession. They are the only witnesses who are qualified to testify as to whether there was negligence in the method of treatment." But, there is a limitation on the rule that expert testimony is essential to support a cause of action for malpractice when the common knowledge or experience of laymen is extensive enough to recognize or to infer negligence from the facts.

Some features of the case at bar, said the court, may be regarded as requiring opinion evidence because they are exclusively within the domain of an expert; however, the court of appeals continued to state that the fundamental fact is that this defendant dentist only partially extracted the plaintiff's tooth and left a fragment in the socket. He did not complete the operation. Although the sequence of events indicated something was wrong, the dentist callously abandoned his patient in a condition of suffering.

It is within the realm of common knowledge of laymen that to leave a part of a broken tooth in the socket, which was easily discovered by another dentist, is malpractice unless proof tending to excuse the act is introduced. This is knowledge that is not exclusively within the province of practitioners of the dental profession. A juror needs no scientific enlightenment to see at once that leaving a portion of a broken tooth in the socket can be accounted for on no other theory than negligence. Such act is somewhat analogous to leaving a foreign substance or object in a patient's body during a surgical operation. The rule of *res ipsa loquitur* generally applies in such cases.

In the case at bar there is added to the proof that a piece of the plaintiff's tooth was left in the socket the element of continued treatment with little or no effort on the part of the defendant to discover the cause and relieve his patient. Dentists are subject to the rules that govern physicians and surgeons generally, and there may be legal liability for postoperative negligence by a dentist. In this day and time, the use of x-ray apparatus by competent dentists and the information revealed through its ordinary use are so well known as to be within common knowledge and frequent experience of laymen. The defendant had such a machine and had used it before the operation but had failed to use it afterward in diagnosing and attempting to remedy the unsatisfactory condition that was so apparent. When another dentist did use an x-ray apparatus, he discovered the fragment of tooth. In the circumstances shown, the jury could well believe that the failure to take x-rays after the operation was a factor to be taken into account in the over-all question of postoperative negligence without having an expert tell them so.

Accordingly, the judgment of the trial court in favor of the defendant dentist was reversed. *Butts v. Watts, 290 S.W. (2) 777 (Ky., 1956).*

Insanity: Liability of Physician in Relation to Commitment Procedure.—The plaintiff filed an action for damages for malicious prosecution against the defendant physician. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Michigan.

The defendant had known the plaintiff and her family for many years and had acted as physician to various members of the family. In 1947, the plaintiff's father told the defendant that the plaintiff had threatened suicide, that she had attacked her sister and had fought her husband and father when they interfered, and that he kept his doors locked in fear of what the plaintiff might do to her mother. The plaintiff's husband, father and brother all asked the defendant's advice as to the desirability of having the plaintiff submit to a mental examination and he told them they should discuss the matter with the probate court. Subsequently the plaintiff's father signed a petition to have the plaintiff committed for a mental examination and requested the defendant to be one of the examining physicians required by statute. The defendant declined to so act. In response to a question by the probate judge, however, he stated his opinion that the plaintiff should be hospitalized for mental treatment, and wrote "9/25/47. In my opinion Mrs. Florence Nash should be hospitalized for mental treatment. /s/ Harold E. Mayne, M.D." The probate court then issued an order for a hearing to determine the plaintiff's mental condition, which order directed that the plaintiff be taken into custody 24 hours before the hearing. The plaintiff was taken into custody and was kept in jail for approximately 33 hours, following which she was released after being examined by four doctors, three of whom certified she was sane. The Supreme Court said that the only issue to decide was whether or not the defendant's signed statement was the proximate cause of the plaintiff's imprisonment.

The petition filed in the probate court, upon which the order directing the plaintiff be held was entered, was signed by virtue of section 330.21 of the Michigan Statutes, which provides: "If it shall appear, upon the certificate of two legally qualified physicians, to be necessary and essential so to do, the court may order such alleged mentally diseased person . . . to be detained until such petition can be heard and determined." Under this section, said the court, an order for temporary detention can only be made after the court has on file the certificates of two physicians certifying that it is necessary to temporarily detain the alleged insane person. There was no record in the present case that such certificates were on file before the plaintiff was detained, therefore the detention order was not in compliance with the statute. In order for there to be proximate cause, it must appear that the injury to the plaintiff was the natural and probable consequence of the defendant's wrongful or negligent act and that such consequence ought to have been foreseen, in the light of the surrounding circumstances. The plaintiff's imprisonment was not the natural and probable consequence of the defendant's signed statement, said the Supreme Court, because the defendant could not foresee, or have any reason to expect, that the probate court would issue an order contrary to the statute. He had the right to rely upon the process of the probate court being regular and proper. Therefore, concluded the court, the writing of the defendant could not be and was not the proximate cause of the plaintiff's injury. Accordingly the judgment of the lower court against the physician was reversed. *Nash v. Mayne, 65 N. W. (2d) 844 (Mich., 1954).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Present Status of Treatment of Autoimmune Hemolytic Anemia with ACTH and Cortisone. W. Dameshek and Z. D. Komninos. Blood 11:648-664 (July) 1956 [New York].

Dameshek and Komninos present observations on 43 consecutive patients with autoimmune hemolytic anemia who were initially treated with either corticotropin, ACTH-gel, cortisone, or compound F. Twenty-one of the 43 patients had the idiopathic type of the disease, whereas in the remaining patients it was associated with chronic lymphocytic leukemia in 18, disseminated lupus erythematosus in 2, periarteritis nodosa in one, and cirrhosis of the liver in one. During the early phases of this study, corticotropin was used not only while the patient was in the hospital but also for maintenance therapy at home, since at that time it was the sole available preparation. When cortisone became available for oral administration, it became the drug of choice for maintenance therapy and was used more and more as the initial medicament. Blood transfusions were given as necessary.

Intensive and presumably adequate hormonal therapy resulted in sustained and complete clinical and hematological responses in 65% of the cases. Complete and sustained remissions were more commonly obtained in the "idiopathic" than in the "symptomatic" group. In 28% of the cases, although the response was definite, it was not so striking. The treatment failed completely in three patients. When therapy was continued after a remission, some degree of relapse developed in about two-thirds of the patients. In the remaining one-third, full clinical and hematological remission continued well after discontinuation of therapy, although the persistently positive Coombs' test indicated the possibility of future recurrence. Splenectomy was performed as the final therapeutic measure in 9 of the 43 patients and resulted in complete remissions in 6 without the further use of steroid hormones. In two patients splenectomy was followed by the development of disseminated lupus, previously undiscovered and presumably latent. The steroid hormones in adequate dosage represent a remarkably effective form of therapy for at least the initial control of most cases of autoimmune hemolytic anemia. Their use for a lengthy period is often followed by a lasting remission, and the end-results of continued steroid therapy, either alone or in some patients combined with later splenectomy, are definitely better than those of splenectomy alone. Thus, control of this rather unpredictable disease has become possible in most cases, and its management is simply a matter of varying the dosage of steroid hormones.

New Hypothesis on Congestive Heart Failure. V. Macchi and M. Corti. Minerva med. 47:1489-1493 (May 16) 1956 (In Italian) [Turin, Italy].

The authors believe that congestive heart failure and muscular fatigue have the same etiology. A decrease of metabolic energy that is probably caused by oxygen deficiency is noticed in both affections. The potential kinetic energy of the myocardial fibers is not restored, and the normal membrane cation gradient is not re-formed. An unequal concentration of sodium and potassium ions in the intracellular and extracellular fluids respectively causes the gradient that is indispensable for the contraction of the myocardial fibers. Compensation comes from an active retention of sodium and a loss of potassium in the adrenal tubules with a consequent change in the water balance. Rest, cardiotonic drugs, and any treatment that can normalize the electrolytic disturbances of the organism constitute the best therapy.

Therapeutic Trial of Total Cardiac Extract (Recosenin) in Man. K. Donat and M. Loos. München. med. Wchnschr. 98:916-918 (July 6) 1956 (In German) [Munich, Germany].

Forty-six patients with angina pectoris averaging 62 years of age were treated for at least four weeks with Recosenin, a protein-free water-soluble extract of the entire heart of healthy animals. Thirty-one patients were hospitalized and fifteen were treated ambulatorily. Circulatory disturbances in the extremities or myocardial infarction had resulted from degenerative arteriosclerotic vascular disease in some of these patients, and others had hypertension and pulmonary emphysema that placed an extra load on the heart. Most of the patients had abnormal electrocardiograms with disturbances of the stimulating period (auricular fibrillation, extrasystoles), prolonged auriculoventricular conduction, branch block, or typical lowering of the ST interval and changes of the T waves. Treatment was instituted with daily intramuscular injections of 1 or 2 cc. of the extract, and in addition 1 or 2 tablets were given three times daily. The injections were discontinued at the end of the second or third week depending on the idividual case, and oral treatment was continued up to six weeks. With the exception of two patients with generalized arteriosclerosis in whom the incidence and severity of the anginal attacks were not influenced by the cardiac extract, the anginal pain subsided in all patients after from three to five days of treatment, and the anginal attacks were less frequent or did not recur.

Disturbances of rhythm subsided in five of six patients who had been treated with the cardiac extract for from three to five days. In three of these patients changes in the terminal ventricular portion of the electrocardiogram were favorably influenced. Improvement in the duration of apnea and in vital capacity were considered as manifestations of increased cardiac performance. The average values were 21 seconds and 1,900 cc. before the institution of the therapy and 33 seconds and 2,500 cc. when the treatment was discontinued. The cardiac extract apparently exerts a favorable effect on the cardiac metabolism; this was shown by the definite improvement of the subjective anginal complaints, and by the normalization of the disturbances of rhythm and circulation particularly in patients of advanced age with degenerative disturbances of cardiac metabolism.

Pituitary Necrosis in Diabetes Mellitus. C. F. Brennan, R. G. S. Malone and J. A. Weaver. Lancet 2:12-16 (July 7) 1956 [London, England].

The authors describe the clinical and the postmortem findings in five patients with diabetes mellitus who had necrosis of the anterior lobe of the pituitary. The most important finding in three of these patients was the fairly identical pattern of healed pituitary necrosis. Plaut observed 2 patients with diabetes mellitus among 24 who had pituitary necrosis. The five cases presented here were discovered among 7,326 successive autopsies on adults, of whom 146 had suffered from diabetes mellitus. Three of these 146 had "moderate pituitary atrophy," whereas of 7,180 nondiabetic patients 13 showed such pituitary lesions. Thus the diabetic patients showed an incidence of approximately 1 in 50, as opposed to 1 in 550 in the general series. The histological changes and the clinical histories failed to throw light on the cause of the pituitary necrosis in the five patients. While two of the patients were women, neither of them had a history of postpartum hemorrhage.

With regard to the question whether partial pituitary lesions are of clinical importance, the authors quote the opinions of other investigators and suggest that, while some effective function may be maintained with a partially impaired pituitary

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The place of publication of the periodicals appears in brackets preceding each abstract.

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under ordinary circumstances, it is doubtful whether function and the emergency supply of corticotropin would be adequate under conditions of stress such as anesthesia, infection, pregnancy, or diabetic ketosis. Such a lesion might be very dangerous, since the paucity of symptoms and signs may prevent recognition of the condition. In two of the five patients with pathological evidence of partial pituitary destruction, the postmortem evidence did not disclose an adequate anatomic cause of death, and one can only speculate as to whether in those patients there was an inability to respond sufficiently to stress. The history of one of the patients is analyzed with regard to whether diabetes is more easily controlled in a patient with pituitary insufficiency and whether hypophysectomy will arrest the development of all diabetic complications. This patient seemed to exemplify the Houssay phenomenon (hypoglycemia and increase in sensitivity to insulin produced by hypophysectomy in depancreatized animals). In this patient there was a considerable increase in insulin requirement after cortisone therapy was started. Furthermore, this patient's myelopathy deteriorated during the period of hypopituitarism, which indicates that the neurological complications are not ameliorated.

Endocrine Therapy in the Aging Individual. W. H. Masters. Obst. & Gynec. 8:61-67 (July) 1956 [New York].

Sex-steroid replacement in the aging individual is one of the most controversial subjects in medicine today. The author is convinced that a third sex exists in our society, a neuter gender of former males and females who have reached the age of approximately 60 years. If the existence of this third sex is acknowledged, the concept of sex-steroid support is easily explained. The purpose of the technique is to develop a better-adjusted and more useful member of the neuter gender through our ever-increasing life-span. There is no evidence that sex-steroid replacement can increase longevity, and its techniques do not represent a panacea for the problems of the aging, but there is evidence that in the majority of treated patients a physical and mental resurgence of power potential is brought about by endocrine control of physiological functions. The entire process of growth, function, and retrogression is stimulated or controlled by the glands of internal secretion. It is therefore of vitual concern to consider the function potential of the entire humoral system during aging phases of the human body. It has become apparent that the gonads are the "Achilles' heel" of the endocrine system in the battle against the aging processes. Their functional failure is the result of a lack of organ-function reserve at a time when there is effective function in other glands. The early failure of gonadal function is due to the infinite sensitivity of these glands to the influence of other elements of the endocrinic chain or to chronic infections that may interfere with adequate ovarian or testicular hormone production and lead to a short-lived activity of the gonads.

If one accepts the usefulness of sex-steroid replacement for the aged individual, there remain the problems of techniques, including the proper time to initiate and the length of time to maintain steroid replacement. The fundamental investigative approach has been to devise steroid-replacement techniques for the support of the former female and then to transpose these techniques to the aged former male. In the aging female, estrogen, progesterone, and testosterone are given in various combinations so as to avoid vaginal bleeding, spotting, endometrial hyperplasia, or even hemorrhage. Combined estrogen-testosterone therapy is well tolerated. There has been no evidence of progressive hirsutism in the female even through three times the clinical dosage of intramuscularly given medicament presently considered effective has been maintained for as long as six months in some cases. The longe-range results include a marked increase in cellular activity in the media of the blood vessels leading to the stimulated organs and a general improvement of the physical and psychological components of the individuals studied in the experiments. The treated patients are not ensured against physical and mental disability, but many have shown that they are physiologically better equipped and psychologically better oriented when treated as members of the third sex. Present consideration is directed exclusively toward treating the climacteric syndrome in either male or female by the combined-steroid-therapy technique.

Aldosteronism Associated with Adrenal Cortical Adenoma. O. B. Pratt. California Med. 85:1-6 (July) 1956 [San Francisco].

An electrolyte-regulating corticoid has been identified and given the name aldosterone. This hormone may be produced in amounts above normal in adrenal cortical tumors, in hyperplastic adrenal glands, and in normal-appearing adrenal glands. Since the description of this salt-retaining hormone by Simpson and Tait and the discovery of its chemical structure by Reichstein in 1954, 13 cases of primary aldosteronism have been reported, including one of the two presented in this paper. The clinical manifestations in the two patients observed here were almost identical. Both complained of headache, dry mouth, episodes of weakness, and polyuria. One patient had no edema, the other had minimal edema. Both had hypertension with systolic pressures around 200 mm. Hg. Serum sodium levels were in the upper-normal range or slightly higher. The urine volume was increased and the specific gravity was low in both patients. The prompt return to normal of all the clinical manifestations and laboratory findings after removal of adrenal tumors in these patients indicates that the tumors were producing a hormone that was the cause of the disturbance. The tumor in the first patient was 1 cm. in diameter, was embedded within the adrenal gland, and was well defined by a fibrous capsule. The tumor in the second patient was 3 cm. in diameter and was attached to the adrenal by a narrow pedicle.

Overproduction of aldosterone is accompanied by characteristic clinical manifestations, such as periodic severe muscular weakness, intermittent tetany, paresthesia, polyuria and polydipsia, hypertension, and absence of edema. Patients with symptoms of hypertension, muscle weakness, thirst, and polyuria should be studied with special attention to mineral metabolism. Laboratory tests reveal hypokalemia, hypernatremia, alkalosis, normal blood calcium levels, and a low ratio of sodium to potassium in sweat and saliva. There is also an increase in the exchangeable body sodium and a decrease in exchangeable body potassium. Pronounced resistance to potassium repletion by oral or parenteral administration of potassium is characteristic. Another feature is hyposthenuria that does not respond to Pitressin (beta-hypophamine). The excretion of aldosterone in the urine is increased. The urinary 17-ketosteroids and the 17-hydroxycorticoids are normal and respond to corticotropin stimulation.

True Scleroderma Kidney. R. J. Calvert and T. K. Owen. Lancet 2:19-22 (July 7) 1956 [London, England].

The history of a patient with true "scleroderma kidney," in whom uremia unexpectedly supervened five months after the clinical onset of acroscleroderma, is reported. Mild renal involvement in scleroderma was suspected when the blood urea level was normal and before cortisone treatment was begun. During this treatment moderate azotemia developed, and, although cortisone was withheld, the patient died a week later in uremia. Histological study revealed the renal vascular lesions that are specific for scleroderma, but histological evidence of other visceral lesions was not found. This suggests that the renal involvement may overshadow other visceral manifestations pathologically as well as clinically. Published reports of these poorly recognised renal lesions are briefly discussed. Such lesions in scleroderma ending in uremia, although inconstant and occasionally impure, can be pathognomonic. True scleroderma kidney is characterised by rapid destruction of kidney tissue as the result of an acute or subacute type of focal and minor renal cortical necrosis.

Observations on a Presumptive Case of Primary Aldosteronism. M. G. Crane, P. J. Vogel and K. J. Richmond. J. Lab & Clin. Med. 48:1-12 (July) 1956 [St. Louis].

A case of adrenal adenoma in a 32-year-old man is presented. This patient apparently had a case of simple essential hypertension, with two unusual complaints—dry mouth and occasional episodes of muscular weakness. The laboratory findings indicated severe hypokalemia and metabolic alkalosis. The 17-hydroxysteroids, 17-ketosteroid, and 17-ketogenic steroid excretion rates were within normal limits. The uropepsin rates were increased fourfold. The symptoms, electrolyte disturbances, and increased uropepsin excretion rate were relieved by removal of a small

benign adrenal cortical adenoma. It seemed reasonable to believe that the adenoma was secreting a highly specific mineralocorticoid. Facilities were not available for determination of the specific hormone; however, the implications were that the steroid was aldosterone, a potent influence in sodium and potassium metabolism. It is a clinical feature of a new disease entity described by Conn and called aldosteronism.

ACTH and Cortisone in Agranulocytosis. J. S. Blumenthal. Minnesota Med. 39:454-456 (July) 1956 [St. Paul].

The numerous remedies recommended for the treatment of agranulocytosis, such as pentnucleotide, folic acid, vitamin B_{12}, blood, and dimercaprol (BAL), have proved largely inadequate, because they do not influence the underlying pathophysiological disturbance, namely, the arrest in the maturation of the precursors of the granulocytes in the bone marrow. Corticotropin (ACTH) and cortisone stimulate the bone marrow, and so it was natural that these hormones should be used in agranulocytosis. The author reports on a 58-year-old woman who was moribund when seen in consultation. Her temperature was 105 F (40.6 C), pulse rate 135, and respirations 35. The mucous membranes of the mouth and throat were covered by a thick, gray membrane. She was unable to give her history. The white blood cell count had been 450 on admission the previous day and was 400 the next morning. All cells were lymphocytes. The sedimentation rate was 123 mm. in one hour. By the morning of the second hospital day she had already received 2,000,000 units of penicillin intravenously and 400,000 units every four hours intramuscularly, as well as 0.5 gm. of streptomycin twice daily, without apparent effect. Because death seemed imminent and no evaluation could be made as to the status of the adrenals, treatment with both corticotropin and cortisone was started. Corticotropin was given in 25-mg. doses every six hours, and cortisone was given intramuscularly, 300 mg. the first day, 200 mg. per day on the second and third days, and 100 mg. daily thereafter. The dose of both corticotropin and cortisone and also that of penicillin and streptomycin was gradually reduced as the dramatic response of the patient warranted. A marked leukemoid reaction in the bone marrow abated with cessation of the steroid therapy. The immediate response in this patient, confirming other reports in the literature, indicates that corticotropin and/or cortisone with antibiotics should be the treatment of choice in severe agranulocytosis.

Studies on the Control of Hypertension: VII. Effects of Ganglionic Blockade Combined with Hydralazine on the Malignant Stage Complicated by Renal Azotemia. H. M. Perry Jr. and H. A. Schroeder. Circulation 14:105-114 (July) 1956 [New York].

Of the patients admitted to Barnes Hospital, St. Louis, between Aug. 1, 1951, and Aug. 1, 1955, with malignant stages of hypertension and renal azotemia, 82 were treated with a combination of ganglionic blocking agents and hydralazine. In this paper, malignant hypertension implies a clinical diagnosis that makes no prediction about the presence of renal arteriolar necrosis. The term malignant hypertension (as employed here) designates a condition characterized by a persistent elevation of diastolic pressure at rest above 120 mm. Hg; hemorrhagic and exudative retinitis with papilledema; proteinuria; and diminished renal function. All the patients had nitrogen retention that failed to disappear after the correction of heart failure. On admission to the hospital, 8 patients were believed to have hypertensive encephalopathy, manifested by confusion or coma; 7 others had pulmonary edema; and 12 more showed significant signs of left ventricular failure. Five patients had histories suggesting that they had suffered apoplectic strokes, and two had electrocardiographic evidence of previous myocardial infarction; 4 had been subjected to surgical sympathectomies.

Sixty-six of the 82 patients continued the treatment. Twenty-eight of these are alive after an average of 21.4 months, and 38 died after an average of 4.7 months. The 66 were arbitrarily divided on the basis of the degree of nitrogen retention before treatment. Twenty-seven of the 46 patients with less than 61 mg. of nonprotein nitrogen per 100 ml. of plasma are being successfully maintained on therapy, whereas only 1 of 20 patients with more marked azotemia has survived. The 16 patients who discontinued the treatment had less than 61 mg. of nonprotein nitrogen per 100 ml. of plasma before treatment. Four were lost to follow-up immediately after discharge from the hospital and are presumably dead. The other 12 are known to have died within a month of discontinuing antihypertensive drugs. Eight of these died with uremia less than 60 days after starting therapy. The remaining four died from 3 to 15 months after treatment was begun, the first after an episode of hypertensive encephalopathy, the second and third after cerebral hemorrhage, and the last as a result of progressive malignant hypertension when hydralazine was withdrawn because of disseminated lupus erythematosus.

Some of these patients, all of whom were in the final stage of a rapidly progressive fatal disease, lived and worked for years with the aid of the antihypertensive regimen. Their tension was maintained near normal and their cardiac function improved, but renal function did not change. Autopsy was performed on 32 of the patients. Heart failure had occurred in 15 and renal failure in 21. The major postmortem diagnoses were fibrinous pneumonitis in 18, renal arteriolar necrosis in 13, pyelonephritis in 4, and myocardial infarction and cerebral vascular accident in one each; however, in the 11 cooperative patients with initially mild azotemia, uremia occurred only once and fibrinous pneumonitis eight times.

Blood Pressure Studies Among American and Foreign-Born Students. N. Szent-Györgyi. Circulation 14:17-24 (July) 1956 [New York].

The author studied the blood pressure of 3,508 students at the University of Chicago. Those with evidence of heart disease, diabetes, hyperthyroidism, or hormonal dysfunction were excluded. Patients with hypertension who also had albuminuria were likewise excluded. The incidence of hypertension was ascertained with regard to the sex, the geographic location of the birthplace, the duration of residence in America, and the race of the student. The incidence of hypertension was 6.9% among the white Americans and Europeans. Eight per cent of the white American men and 3.2% of the women were hypertensive. The rates were 6.9% for the European men and 6.6% for the European women, but only 3.2% for the non-European foreign-born white men and zero for the women. The incidence of hypertension among American men was significantly higher than among foreign-born men. There was no significant difference in the incidence of hypertension between American and foreign-born women. There was no difference in the incidence of hypertension between American and European-born white students. However, the percentage among foreign-born non-European white men was less than half that of the American and European white men. American-born and African-born Negro men were represented with rates of 15.6% and 14.2% respectively. There was a higher incidence of hypertension in American Negro men than in any other group examined, topping that of the next highest group, the American white men, by a factor of 2.

The incidence of hypertension among American-born Oriental men was six times higher than among Asian-born Orientals but still lower than among American or European-born white men. Only about a fifth of the foreign-born students had lived in the United States more than 10 years prior to the examination. The incidence of hypertension in this group was 8.5%, that is, the same as among American-born white men. It appears that if someone lives in the United States long enough—regardless of birthplace or race—he will stand the same chance of becoming hypertensive as if he had been born here.

Attempt at Treatment of External Lymph-Node Tuberculosis with Cortisone. J. Bernard, P. Grenet and others. Sang 27:131-137 (No. 2) 1956 (In French) [Paris, France].

Treatment of lymph-node tuberculosis must be evaluated according to the characteristics of the disease: on one hand, its habitual mildness and frequent spontaneous curability, and on the other its prolonged course and the deforming scars it produces. Treatment must be harmless and rapidly effective (in 2 to 4 weeks) and it must prevent the scars resulting from fistulization. The ineffectiveness of the ordinary drugs used in treating lymph-node tuberculosis and the good results obtained

with adrenocortical hormones in exudative tuberculosis and with cortisone pomade in the treatment of tuberculous ulcers of lymphatic origin led to a therapeutic use of cortisone in 30 patients suffering from lymph-node tuberculosis; they ranged in age from 1 to 52 years, and 18 were less than 10 years old. The duration of the symptoms before the hormone treatment was started varied from 15 days to 1 year. Seventeen patients had no treatment before they were given cortisone; 3 had had a surgical intervention followed by a relapse; 10 had been treated with antituberculous drugs, mostly isoniazid and aminosalicylic acid combined. Two of these patients recovered temporarily, but treatment in the other eight was ineffective. Cortisone was given with isoniazid in six cases. Intralymphatic injections of hydrocortisone were used in 18 patients (associated with isoniazid by mouth in 10), and hydrocortisone in local injections with cortisoae by mouth was used in 6 cases under cover of isoniazid. The greater efficacy of hydrocortisone led to its use in unifocal cases, while cortisone was given orally in plurifocal cases. Failures included complete lack of response, cases in which the lymph nodes did not regress to less than two-thirds of their initial volume, and cases in which superinfection forced abandonment of the treatment. Results were considered successful when the swollen lymph nodes disappeared completely or left only small fibrous or calcareous residues. Treatment in 23 cases was effective and rapid. The failures were analyzed and found to be due to insufficient dosage, to superinfection, or to relapse, which is a frequent occurrence. Recovery is rapid, occurring usually in from 15 to 20 days. The value of antibiotics is open to question. Surgical treatment necessitates general anesthesia and dissection of a richly vascularized and innervated region, carrying the risk of injury to the nerves, and does not prevent relapse. Cortisone seems to be the best treatment for external lymph-node tuberculosis because of its harmlessness, its rapidity of action, and its esthetic results.

SURGERY

Results of Valvulotomy for Valvular Pulmonary Stenosis with Intact Ventricular Septum: Analysis of 69 Patients. D. M. Hosier, J. L. Pitts and H. B. Taussig. Circulation 14:11-16 (July) 1956 [New York].

Transventricular pulmonary valvulotomy was performed at the Johns Hopkins Hospital on 86 patients with pulmonary valvular stenosis and an intact ventricular septum. There were seven deaths. Sixty-nine patients have been followed for from three months to four years postoperatively. Subjective improvement was observed in all but two of these patients. The comparison of the hemograms and arterial oxygen saturations shows improvement in all patients but one, in whom an associated anomaly of the pulmonary venous return is suspected. The analysis of the postoperative physical findings showed the murmur to be less intense in 24 patients and a systolic thrill to have disappeared in 14 of these patients. In 15 patients, a systolic murmur was heard in the pulmonic area. Engorgement of the liver was not noted in any of the patients, and, in every instance in which pulsations at the liver edge were present before operation, the pulsations ceased almost immediately after it. Studies on the size of the heart showed that, if the heart was not enlarged preoperatively, there was no change in its size, whereas, when the heart was enlarged, several distinct changes were noted. In patients under 2 years of age, there was an actual increase in the size of the heart in the immediate postoperative period. Later examinations, however, showed the heart size to have remained stationary while the chest grew. In patients over 18 years of age, the heart decreased steadily in size during the first few postoperative months. In some of the younger patients, the size of the heart decreased to within normal limits and then grew normally with the growth of the chest; in others, the heart remained the same size while the chest grew; and in still others, only progressive enlargement ceased, and the heart and the chest grew together. Cardiac catheterization showed a correlation between the postoperative pressure and the change in the size of the heart. In those patients in whom the pressure was reduced to below 100 mm. Hg the size of the heart returned to normal. These patients were considered to have obtained an excellent result.

Carcinoma of the Thyroid. N. D. Wilson, D. B. Seabrook and R. B. Stevens. Northwest Med. 55:767-771 (July) 1956 [Seattle].

A study of mortality in 109 cases of carcinoma of the thyroid, in which one-third of the patients died of uncontrolled cancer, indicates that this carcinoma kills when inadequately treated and should be attacked as vigorously as cancer elsewhere in the body. Early definitive treatment is especially important. Categories of the cases were papillary carcinoma (42.2%), adenocarcinoma in an adenoma or malignant adenoma (36.7%), and anaplastic carcinoma (21.1%). In fatal cases of papillary carcinoma, death is caused by the local spread of the uncontrolled primary tumor in almost every case. The primary tumor frequently is invasive, although metastatic growths in cervical lymph nodes are not. Local recurrence after removal of involved lymph nodes is not common. Recurrences are to be found in the periphery of the gland dissection field or in lymph nodes left behind at the previous operation. The tumors once described as lateral aberrant thyroid tumors were in fact metastases in the lymph nodes from papillary carcinoma of the thyroid. Malignant adenomas metastasize later than papillary tumors, and the spread is usually distant. Papillary tumors metastasize earlier and to the local nodes. So-called "benign metastasizing goiter" is in fact malignant adenoma of low grade. Anaplastic carcinomas, which include all adenocarcinomas not in the first two groups, grow and spread rapidly, metastasize early, are resistant to all forms of treatment, and are frequently fatal. Fifteen per cent of the patients with papillary carcinoma died as a result of cancer. Thus tumor was uncontrolled in 30 per cent in this group, which is supposed to respond best to treatment. Twenty-five per cent of the patients with malignant adenoma died; 30% of the cases were uncontrolled. In the patients with anaplastic carcinoma there was a mortality rate of 82.6% and an uncontrolled rate of 95.6%. Treatment received by the 36 patients of this report who died was in most cases inadequate if judged by current standards of cancer surgery. Only 2 of the 36 had total lobectomy and radical neck dissection. Four others had total lobectomy or thyroidectomy with or without therapy. Nine had no treatment or biopsy only. The remainder had some form of subtotal thyroidectomy, usually with radiation therapy. Median survival times of the patients who died were 48 months for those with papillary tumors, 27 months for adenocarcinoma, and 6 months for anaplastic carcinoma. Radical neck dissection was used in the treatment of two of the longest survivors.

Total lobectomy is recommended for all thyroid adenomas. Carcinoma should be suspected in any nodular goiter. Disadvantages of subtotal resection for thyroid nodules include the dangers of leaving cancer in the residual gland, seeding cancer cells throughout the field, and missing the tumor entirely. With total lobectomy there is improved chance of complete control of the primary tumor. Since a high proportion of the patients who die do so as a result of uncontrolled local disease, every effort must be made to eradicate the disease locally. Radical neck dissection should be carried out in every case of carcinoma of the thyroid when the primary tumor is resectable and no distant metastases can be demonstrated. Regional metastases, found in a high percentage of cases (perhaps 50%), may be present without palpably enlarged lymph nodes. Irradiation is no substitute for surgical excision of the gland.

Radiological Tests to Determine the Use of Surgery in Carcinoma of the Bronchi. L. Caldarola. Minerva chir. 11:408-416 (May 31) 1956 (In Italian) [Turin, Italy].

Expansion of carcinoma of the lung can be more successfully diagnosed and studied if the standard ronetgenological tests are combined with bronchography, stratigraphy, pneumonography, and angiocardiography. The author advises surgery only in case of cancer that lends itself to complete resection, isolated or together with hilar lymph nodes. Patients with infiltration of the mediastinum, pleura, ribs, diaphragm, and pericardium have better results if treated medically. Stratigraphy is particularly useful in the study of carcinoma of the parahilum. The separation of the different planes makes is possible to detect the tumor. Pneumonography helps to establish with certainty the extent of infiltration in the mediastinum. The topography and benign or malignant nature of the affection are best determined with

anginopneumonography. To choose one method exclusively or to give it priority is not advisable, since each method complements the others. Bronchography, however, has mainly a local diagnostic value. The other three methods are of particular help in determining the extent of infiltration in the mediastinum.

New Surgical Approach to the Relief of Angina Pectoris. L. T. Palumbo. J. Iowa M. Soc. 46:343-349 (July) 1956 [Des Moines, Iowa].

Palumbo describes an anterior, transthoracic, transpleural approach to the upper dorsal sympathetics, and shows that it is a safer and much simpler procedure than others that have commonly been used in the past. It makes possible a complete and permanent sympathetic denervation of the heart, coronary vessels, head, neck, and upper extremities. It carries lower morbidity and mortality rates than do other methods of sympathectomy. With the use of this technique, the patient can be given greater assurance that complete or almost complete relief of angina pectoris will follow, and his rehabilitation will be more rapid than with other methods of sympathectomy. In many patients cardiac function will improve, and some of them will be able to return to the occupations they had before they were incapacitated by the anginal attacks.

Studies carried out during the development of this new technique revealed a new concept concerning the pupillociliary sympathetic pathways. Even though the first dorsal ganglion (lower third of the stellate ganglion) is removed, a Horner's syndrome does not occur. It is assumed, therefore, that the pupillociliary pathways do not pass via the first ramus communicans to the first dorsal ganglion but are, apparently, conveyed by a separate paravertebral pathway to the upper portion of the stellate ganglion.

Kartagener's Syndrome: Report of a Case Treated by Middle Lobe Lobectomy. T. C. Moore and R. A. Silver. Am. Surgeon 22:595-597 (June) 1956 [Baltimore].

The 20-year-old man whose history is presented had the triad of bronchiectasis, situs inversus, and sinusitis. The bronchiectasis involved the middle lobe in the left hemithorax. The patient had suffered from a severe cough and almost continuous respiratory infection. Middle-lobe resection was carried out. The patient tolerated the operation well. Chest suction was maintained for 48 hours following the operation. The remaining lobes on the left expanded well. The postoperative course was uneventful, and there was considerable improvement, at least during the rather brief period of observation.

The authors point out that the frequent association of situs inversus, bronchiectasis, and sinusitis was first emphasized by Kartagener in 1933. Up to the present time, 105 cases of Kartagener's syndrome have been reported. Pulmonary resection was carried out in only 9 of the 105 patients. A number of these cases were discovered on autopsy. Some were studied prior to the current acceptance of resection for bronchiectasis. Others were too advanced to benefit from resection or too early or minimal to justify this procedure. Middle-lobe resection has been carried out in only one other patient with Kartagener's syndrome.

Mediastinal Emphysema and Bilateral Pneumothorax Following Surgery of the Neck. L. C. Rollins and D. H. Poer. Am. Surgeon 22:567-572 (June) 1956 [Baltimore].

Mediastinal emphysema and pneumothorax constitutes a severe although uncommon complication of any surgery of the neck involving incision into the pretracheal or middle layer of the deep cervical fascia. The authors present the history of a woman in whom emphysema and pneumothorax developed after an operation for an esophageal diverticulum of the pulsion type. This complication has been reported after tracheotomy, radical neck dissection, block or ectomy of the stellate ganglion, esophageal surgery, tonsillectomy, and even after anesthetization alone. The surgeon may cause this complication if the pleura is inadvertently incised beneath Sibson's aponeurosis at the cupola of the lung, and the anesthesiologist may be at fault if hyperinflation of the pulmonary circuit has occurred. In many instances the air enters the mediastinum and pleural space directly by way of fascial planes, as has been shown by autopsy findings. The knowledge of the possible development of this clinical entity and the ability to recognize its presence are essential to diagnosis. The most common early findings are subcutaneous emphysema, pain in the chest, variation from the normal respiratory pattern, evidence of circulatory failure, and auscultatory findings. Roentgen examination of the chest corroborates the diagnosis and may be used to follow the progress of the complication.

The importance of prompt and adequate therapy cannot be overemphasized. If the patient has not yet reacted after anesthesia, an airway must be induced. Oxygen should be given either nasally or by tent, but not by a positive pressure mask. Analgesics and meperidine (Demerol) may be used to alleviate anxiety as well as for shock and pain, but morphine should not be used, because it depresses respiration. Close observation is mandatory, because the development of tension pneumothorax merits immediate needle aspiration and/or closed thoracotomy drainage of the third or fourth intercostal space. If there is little change in the vital signs and if the status of the patient is reasonably satisfactory, it is justifiable to wait for roentgenologic confirmation. Lateral views are valuable in demonstrating the mediastinal and subcutaneous presence of air. Unless this serious complication is recognized and treated, the mortality is extremely high.

Cortisone in the Post-Operative Management of Patients with Advanced Pulmonary Tuberculosis. J. R. Edge. Tubercle 37:166-171 (June) 1956 [London, England].

Five patients, recognized to be very poor surgical risks, were submitted to resection for advanced pulmonary tuberculosis. Each became critically ill in the days following operation, with symptoms of exhaustion and peripheral circulatory failure. After failure to respond to the usual measures, immediate and very striking improvement followed the exhibition of cortisone, which is considered to have been life-saving. One of the patients later died, apparently from pulmonary embolism, whilst the remaining four continue to do well. In no instance has there been evidence of any deleterious effect on the residual tuberculous disease. Two hypotheses may be advanced to account for the action of cortisone in these patients: the facilitation of the effect of the antibacterial drugs, as demonstrated by Houghton; and the relief of nonspecific stress in the presence of presumed adrenal exhaustion by replacement of an active steroid hormone. In view of the very rapid response, the latter action may be the more important; but it has not so far been possible to obtain laboratory evidence in support of this theory. Studies of adrenocortical function before and for several days after operation will be of great interest. Meanwhile, the empirical use of cortisone in the type of case described appears to merit further trial.

The Prognosis in Dissecting Aneurysms of the Aorta: Therapeutic Suggestion. D. J. Freeman. Wisconsin M. J. 55: 709-721 (July) 1956 [Madison, Wis.].

It was the purpose of the studies described to determine the factor or factors influencing the prognosis of dissecting aneurysm of the aorta. The material consisted of 17 patients studied at the Cincinnati General Hospital and 161 cases selected from among 400 described in the literature. The most important single factor seemed to be the spontaneous reentry of the dissected channel into the true aortic lumen at a lower level. Spontaneous reentry of the dissected channel at its distal extent is nature's best method of healing dissecting aneurysm of the aorta. If surgery is contemplated, an attempt should be made to secure reentry at the lowest extent of the dissection.

The author lists the important factors in the management of dissecting aneurysm. Early diagnosis is vital and angiocardiography and retrograde aortography may prove to be helpful in the diagnosis. An effort should be made to estimate the extent of the dissection. Sedatives, analgesics and suitable antihypertensive drugs should be given immediately. Surgical production of reentry of the false dissected channel into the true aortic lumen at the lowest possible level should be attempted without delay, because the mean survival time is only about three or four days, and some patients fail to survive even 48 hours. If surgery is carried out, anticoagulant therapy should be instituted on the second postoperative day.

Annular Pancreas in the Newborn and in Adults. F. Soave and V. Sulas. Minerva chir. 11: 432-442 (May 31) 1956 (In Italian) [Turin, Italy].

The authors report the occurrence of an annular pancreas in a 3-day-old infant and in a 32-year-old woman. The diagnosis before surgical intervention was duodenal stenosis caused by annular pancreas for the infant and stenotic ulcer of the duodenum for the adult. Diagnosis of annular pancreas is very difficult in adults. This malformation of the pancreas can cause direct stenosis of the duodenum. In infants radiological examination after an opaque meal shows obstruction in the upper part of the duodenum. The obstruction can be partial or complete. Radiological examination on an empty stomach shows one bubble of air in the stomach and one in the first part of the duodenum. Radiological diagnosis of annular pancreas in adults is very difficult. Epigastric pain, nausea, vomiting, loss of weight, and dehydration are the most common symptoms in children when the obstruction of the duodenum is complete. Partial obstruction in adults often exists without any symptoms until the 30th or even the 50th year of age. The annular pancreas has the same histological characteristics as the normal pancreas.

The authors reviewed the literature on this subject and discovered that of 41 cases 24 occurred in males and 17 in females. Children between 1 day and 3½ years old constitute the largest age group. Nausea, mild epigastric pain, vomiting with or without bile, and massive hemorrhage are the symptoms in adults. Annular pancreas, because of these symptoms, is often mistaken for duodenal or peptic ulcer or a lesion of the stomach. In 98% of the cases it is discovered during operation for stenosing duodenal ulcer, recurring pancreatitis, or pyloric neoplasia. Resection of the pancreatic ring is not advisable because it may cause a pancreatic fistula and make the reestablishment of normal intestinal current difficult.

The Results of Treatment of Gastric Cancer. O. Olsson, A. Westerborn and B. Endresen. Acta chir. scandinav. 111: 1-15 (No. 1) 1956 (In English) [Stockholm, Sweden].

An account of 15 years' experience in surgery of gastric cancer is given. Four hundred sixty-four patients were treated, and resection was performed on 201. It is suggested that the mortality during the first month after the operation should represent the risk of operation. The use of a logarithmic diagram is recommended in the graphic representation of the survival rate because it permits direct comparison of the mortality at different periods and in different series. The mortality rate during the first month was about 32%, with a distinct tendency to decrease toward the end of the investigation period. Not even a follow-up of seven years is sufficient for evaluation of the end-results of gastrectomy. Of the patients subjected to gastrectomy, 24% survived more than three years and 16% more than seven years. Most of the patients under 55 years were found to be operable. Patients in the sixth, seventh, and eighth decades had the same prospects for three-year cure, but the prospects were brighter for those in the fifth decade. Operability did not vary with sex, and both sexes tolerated the operation equally well, but the prospects for a long survival were better in men. It is important to operate within three months of the onset of symptoms. A longer history is accompanied by increased operative risks and shorter survival. In the presence of metastases at operation the prospects of a three-year cure were 6% as against 42% in the absence of visible metastases. The occurrence of metastases should not contraindicate gastrectomy. In 5.4% of such cases the patients lived for more than three years after the operation. The results of operations performed at different hospitals cannot be compared because there are so many factors influencing the composition of the material.

Partial Gastrectomy for Peptic Ulceration in the Aged. W. W. Davey and B. O'Donnell. Lancet 1:1033-1035 (June 30) 1956 [London, England].

Peptic ulceration is no respector of age, and, though the usual onset is in the 20's, 30's and 40's, the relapsing nature of the disease means that many old people suffer from it. Many septuagenarians and octogenarians may show the disease for the first time, often in a virulent form. The old people frequently need surgical relief. The authors review their experiences in 30 consecutive elective partial gastrectomies in patients over 70. They give reasons why they regard partial gastrectomy as advisable for these patients. Preparatory to the operation the vital capacity and hemoglobin level were estimated and improved if possible. Breathing exercises were taught, and inquiry was made into the possibility of the presence of a "cold" and, if such were found, operation was postponed for at least 10 days after the acute infection. Trial doses of any drugs likely to be used, such as pethidine and promethazine, were given. Most of the patients with recent symptoms of ulcer activity were given two or three week's rest in bed before operation. Intravenous infusions were avoided in these patients, because they involve immobilization; when they were necessary, an effort was made to have a temporary rather than a continuous drip.

Seventeen of the patients had gastric ulcers, eight had duodenal ulcers, and five had signs of both. Twelve of the gastrectomies were of the Billroth-1 pattern, and the remainder were Polya operations with a Finsterer-Lake valve. There were no deaths immediately or remotely connected with the operations. Most of the patients were delighted with their operation, and on the whole their gastric capacity was normal, and they were less liable to have postgastrectomy symptoms than are younger folk. Perhaps this is because the gastric remnant is more lax and distensible in older people.

Acute Postoperative Enterocolitis. K. A. Hultborn. Acta chir. scandinav. 3:29-44 (No. 1) 1956 (In English) [Stockholm, Sweden].

Postoperative enterocolitis is discussed on the basis of seven cases and a review of the literature. Special attention is given to the pathogenesis. Postoperative intestinal paresis and, after some operations, reduced gastric acidity tend to turn what would otherwise be a mild intestinal infection producing only slight clinical signs and symptoms into a malignant condition. A poor nutritional state and general condition and impaired circulation in the bowel wall resulting from intestinal distention or shock reduce the vitality of the intestinal wall and its resistance to bacteria and toxins. Such antibiotics as appreciably alter the intestinal flora may be similarly synergistic in the development of postoperative enterocolitis. Since the complication tends to single out persons whose general condition is poor, it may be that some measure of prophylaxis lies in preoperative treatment designed to improve the general condition. The serious nature of postoperative enterocolitis is often not recognized until shock has become manifest. The essential therapy will then consist of prompt antishock treatment, before irreparable damage has been done. If acute diarrhea, vomiting, abdominal pain, or distention occur postoperatively, particularly after abdominal and pelvic surgery, postoperative enterocolitis should be considered and treatment instituted forthwith.

Fracture of the Talus. J. K. C. Rijsbosch. Arch. chir. neerl. 8:163-173 (No. 2) 1956 (In English) [Arnhem, Netherlands].

Sixteen new and six old fractures of the talus have been observed in 21 patients at the Utrecht University Clinic during recent years. The talus is a link between the foot and the distal part of the leg and distributes the body weight over the calcaneus and the points of support in the anterior part of the foot. The bone has seven articular surfaces, and three-fifths of its surface is covered by cartilage. There are no muscle insertions. Fractures of the talus, therefore, are generally intra-articular. The author discusses the blood supply of the bone and classifies talus fractures into four main groups: (1) avulsion and flake fractures, (2) transverse fractures of the talus, (3) multiple and longitudinal fractures, and (4) fractures of the head of the talus. The avulsion and flake fractures are subdivided into fractures of the posterior process, those of the lateral process, so-called dome fractures, and other avulsion fractures.

An avulsion fracture of the dorsum of the neck of the talus was found in three of the patients observed at the Utrecht Clinic. In two of these the fracture resulted from plantar flexion of the anterior part of the foot. Good results were obtained with a plaster-of-paris bandage and with zinc poroplast. Fractures of the posterior process of the talus were seen in three patients associated with a trimalleolar ankle fracture in one. In two patients

the injury resulted from a fall and in one from a torsion strain. The fractures were treated by means of a walking-cast. Functional results were good. The man who sustained bilateral talus fractures had fallen from a height of 21 ft. There was a transverse fracture of the talus of the left foot, with mild dislocation of the anterior part of the foot, and a fracture of the medial tibial malleolus. The right foot showed a fracture of the lateral process of the talus and a fracture of the medial tibial malleolus. The results of conservative treatment were such that the man was able to resume heavy labor without further symptoms. A fall from a considerable height caused transverse fracture of the talus with dislocation of the anterior part of the foot in two other patients. A trimalleolar ankle fracture was associated in one. The fractures were immobilized for three months following reposition, after which there was a satisfactory functional result.

Three patients had a fracture on the medial side of the trochlea tali in addition to their ankle fracture. An 11-year-old boy sustained an incomplete transverse fracture of the talus combined with a fracture of the medial tibial malleolus. Treatment by means of a walking-cast led to complete recovery. Two multiple fractures of the talus occurred as a result of severe incarceration of the foot. Reposition was insufficient in both cases. The talus fragment, which showed dorsal displacement, gave rise to a bone block causing impairment of the dorsal flexion. It is hoped that an arthrotomy with extirpation of the prominences will improve the function. Avascular necrosis was seen in four cases of old fractures of the talus. The corpus tali was sclerotic and flattened, and there was arthritis deformans of the adjacent joints. Two patients were treated by arthrodesis for pain and varus position of the foot. In a 67-year-old woman the talus had been extirpated elsewhere because of complicated dislocation. Tibiotarsal arthrodesis was advised because of pain. Dislocation of the talonavicular joint was observed in a woman seen in the outpatient clinic. She had had an accident three months previously. Treatment was not prescribed because the symptoms were extremely mild.

Reconstruction of Thumb by Toe Transfer. B. S. Freeman. Plast. & Reconstruct. Surg. 17:393-398 (May) 1956 [Baltimore].

Freeman reports on a 20-month-old boy who had had his right thumb ripped off by a huge dog. The residual stump showed an avulsion of skin and subcutaneous tissue at the metacarpophalangeal joint with the exposed base of the proximal phalanx; the distal phalanx and two-thirds of the proximal phalanx were gone. A dorsal, bipedicle flap was used to close over the bare bone, and the donor site was covered with a thick split graft. The stump healed with a durable covering but was obviously too short to be of much functional use. A toe-to-thumb transplant was deemed advisable, but, instead of using the relatively stiff big toe, it was decided to use the second toe, which is of much less importance in locomotion than is the big toe. Three months after injury, the stump of the thumb was dissected free to expose the remnant of the proximal phalanx, the extensor tendon, and, under considerable tension, the tendon of the flexor pollicis longus. A transverse dorsal incision over the metatarsophalangeal joint of the right second toe was carried to the midlateral lines, exposing the joint and the flexor and extensor tendons. The tendons were cut 0.5 in. proximally to the incision and the digit disarticulated. The base of the proximal phalanx was sectioned, a mortise cut to correspond with a similar section in the remnant of the thumb, and, after the hand was brought down, no. 32 wire used for an interosseous suture. The flexor and extensor tendons were coapted with no. 5-0 white silk and the dorsal skin closed with one row of sutures. While the hand and foot were held in position with the fingers wrapped about the sole, a right-arm-right-foot skin-tight plaster cast was applied.

On the eighth postoperative day the sutures were removed, and it was noted that the hand no longer lay across the instep but had migrated medially. Ten days after that the median plantar pedicle was sectioned to the midline of the plantar surface and the vessels ligated. As the undersurface of the stump had become attached, it was with difficulty that this was raised sufficiently to suture it to the plantar edge of the toe with three mattress sutures. The tension due to the retraction of the hand was relieved by shifting the dressing, and the foot defect was closed. Later the child fell on the hand and sustained a fracture. This was reduced and a cast was applied. Three weeks later x-ray examination showed excellent bone formation but an increase in the lateral angulation of the distal thumb portion. Obviously the flexor tenorrhaphy had separated and the unopposed extensor mechanism had caused a posterior deformity after the fracture. It was difficult to maintain the splint, and it was discarded. Although the patient used his hand constantly, the 20-degree posterior deformity was annoying and was corrected by a simple osteotomy and splinting with a plaster cast. Three years later the transplanted thumb showed practically normal function and sensation as well as evidence of growth. For a child, reconstruction of a thumb by toe transfer would seem to be preferable to any other method.

Familial Polyposis of the Colon. R. P. McBurney and R. L. Sanders. Am. Surgeon 22:583-594 (June) 1956 [Baltimore].

The authors report on 10 patients with polyposis of the colon, all of whom had a family history of colon disease, mostly of colonic polyposis and/or cancer of the colon. Familial polyposis of the colon is inherited as a Mendelian dominant or recessive. It is transmitted by both sexes, and usually appears at puberty or in the second or third decades of life. Carcinoma develops in a high percentage of the patients. Colonic polyps are premalignant lesions, and their presence constitutes a threat to the life of the patient. The treatment of the isolated polyp or even a few polyps is not too difficult; familial polyposis, however, wherein the colon contains literally thousands of the growths, frequently presents a serious surgical problem. While it is recognized that polyposis calls for surgical intervention, there is some disagreement as to the choice of procedures. The advantage of subtotal colectomy with ileosigmoidostomy or ileoproctostomy lies in the fact that sphincteric control is retained, the number of stools is low, and little or no nutritional problem arises following operation. In addition, the remaining segment of the colon can be observed through the sigmoidoscope, permitting fulguration of residual or subsequent polyps. Potentially malignant tissue is left in the body, however, when this procedure is used, and many patients will not cooperate by having proper follow-up proctoscopic examinations.

Peutz described a syndrome of melanosis of the oral mucous membranes with polyposis of the intestines, and Jeghers and associates observed melanosis of both the oral mucosa and the digits in association with intestinal polyposis. None of the patients presented here had polyps in regions other than the colon, and none had pigmented areas in the buccal mucous membranes or the digits. Nor did any of the group have multiple sebaceous cysts in combination with colonic polyps, an association recently described by Oldfield. Multiple polyps and pseudopolyps, found after long-standing inflammation of the colon, are similar in some respects to familial polyposis, but are, in reality, a different disease. In both conditions there appears to be a propensity to malignant degeneration. An occasional patient with polyposis will meet disaster from hemorrhage, perforation, or intussusception, the principal danger, however, is the development of a carcinoma.

NEUROLOGY & PSYCHIATRY

Indications for and Results of Surgical Treatment in Temporal Epilepsy. J. Guillaume and G. Mazars. Semaine hôp. Paris 32:2013-2018 (June 10) 1956 (In French) [Paris, France].

Analysis of the results obtained in 110 patients with temporal epilepsy operated on during an eight-year period shows that more than three-fourths were benefited and that about one-half were significantly improved. The procedure, which is benign, should not be regarded as a last resort for severely ill patients whose epilepsy is uncontrolled or poorly controlled by medication and who are burdened by an intellectual deficit or personality disturbances. The most significant material and social benefits were obtained in patients with a high intellectual level, some of whom had only a few seizures a month, thanks to careful medical control. Few as the seizures were, however, they were sufficient to jeopardize a lucrative career. Surgical treatment, therefore, may legitimately be considered for a patient whose

inability to lead a normal life interferes with his scholastic or professional career, even though the attacks are infrequent and the disease of long standing. The "temporal" localization of the epilepsy, however, must be well established before the operation is undertaken. No justification can be found for an intervention in patients with long-standing epilepsy in whom the attacks are infrequent and sufficiently controlled by medication not to interfere with a normal life. The operative indications in patients with diffuse or extensive lesions in whom temporal crises are associated with an intellectual deficit or mental retardation and personality disturbances are less clearly defined. Both the epilepsy and the associated defects will be greatly helped by operation in some of these patients; in others, the patient's general status may remain more or less unchanged while the epilepsy alone is relieved. The percentage of improvements and cures obtained in these patients will not be so high as it is when epilepsy alone is present; nevertheless, operation is indicated in many of these cases because it may transform the existence of patients who would otherwise have to undergo long periods of hospitalization.

Social and economic factors should also be taken into consideration; thus the operative indications should be broader for patients whose livelihood depends on their work than for those whose financial position is assured. Special problems arise in connection with epileptic attacks of comparatively recent appearance, especially in patients between the ages of 15 and 40. Neither the absence of associated neurological signs nor the lack of signs of intracranial hypertension can exclude the possibility of neoplasia in such patients, yet they should not be routinely subjected to operation. They should be kept under observation, and intensive anticomitial treatment should be postponed until the possibility of a neoplasm can reasonably be excluded because of the absence of change in the electroencephalographic tracings over an adequate period of time.

New Predisposing Factor in Poliomyelitis: A Previous Neurological Disease. E. Rodriguez-Vigil Lorenzo. Rev. españ. pediat. 22:229-240 (March-April) 1956 (In Spanish) [Zaragoza, Spain].

According to the literature, a neurological disease in a child is a predisposing factor to the development of poliomyelitis. The author observed four infants and two young children who developed poliomyelitis after a previous neurological disease, consisting of a chronic encephalopathy in three cases, encephalopathy and purulent meningitis in one, and tuberculous meningitis in two. The author believes that the neurological disease causes a weakness of the central nervous system that favors the development of poliomyelitis. For prevention, the antipoliomyelitis vaccine should be given by preference to infants and children who have suffered a neurological disease. In children who have had a neurological disease, the central nervous system is vulnerable to the effect of bacterial and viral agents. It is advisable to give the antipoliomyelitis vaccine as soon as possible after the occurrence of a neurological disease. Poliomyelitis in the cases reported by the author and those cited in the literature occurred at a period that varied from several days to a few months after the neurological disease.

Reserpine and Chlorpromazine in Psychiatry. A. T. Knutsen. Tidsskr. norske lægefor. 76:368-371 (June 1) 1956 (In Norwegian) [Oslo, Norway].

In Eg Hospital 154 patients were treated with chlorpromazine and/or reserpine from February, 1955, to February, 1956. The results are evaluated in the 143 patients observed for from 1 to 12 months. The material includes 94 cases of schizophrenia, 24 of manic-depressive psychosis, and 18 of constitutional psychosis. Most of the patients had a long history of illness, in some cases 20 years or more, and had shown little or no response to other treatment. Thirteen are now without psychotic signs and able to work, 28 are considerably improved, partly able to work and more social, 80 are more easily cared for and in some of these, treated for a short time, there is hope for further improvement, while in 21 the treatment seems to have been without effect, although here also improvement might still be expected in some cases. There was no aggravation ascribable to the treatment. Change to reserpine or a combination of the two agents after start of treatment with chlorpromazine was mostly because of the greater cost of chlorpromazine. To date, the side-effects of chlorpromazine have been few and those of reserpine fewer. Phenergan is a good antidote for the allergic conditions that may be looked for with chlorpromazine and together with chlorpromazine has a good hypnotic effect; it has therefore almost as a routine measure been given to patients who received larger doses of chlorpromazine. The chlorpromazine dosage was from 75 to 600 mg. daily, apportioned in two or three doses and given either by deep intramuscular injection or by mouth. The reserpine dosage was from 0.50 to 4 mg. daily, by mouth, and apportioned in two or three doses. Effective dosage should be reached as soon as possible.

Tuberculous Meningitis: A Study of Cases Treated at Wellington Hospital During the Period 1950-55. I. A. M. Prior. New Zealand M. J. 55:117-124 (April) 1956 [Wellington, New Zealand].

Twenty-seven patients with tuberculous meningitis were treated in a hospital in Wellington, New Zealand, during the years from 1950 to 1955. Thirteen were treated from 1950 to 1952 and 14 from 1953 to 1955. The ages of the patients ranged from 14 months to 50 years. Twelve of the 13 patients treated during the first three-year period (1950 to 1952) died, and the one survivor was the only patient of that group who had received isoniazid. In the second three-year period (1953 to 1955), all but two of the patients received isoniazid, and 11 of the 14 survived. The much more favorable results obtained in the second group seem to be due to the treatment with isoniazid. One of the three who died had not received isoniazid; an infant died of miliary tuberculosis on the day after admission; and the third patient died of a relapse 10 weeks after discharge, despite resumption of treatment. Neurological complications developed in four of the six patients who were treated with systemic and intrathecal administration of streptomycin together with isoniazid. Evidence favors treatment without the intrathecal administration of streptomycin. The early subjective improvement and the cerebrospinal-fluid findings in four patients treated with cortisone or corticotropin confirm the advantages of this treatment, although it did not prevent the development of spinal block in two of these patients. In one of the two patients the block lasted 10 weeks, while in the other it was of shorter duration. Neither patient showed any evidence of spinal-cord involvement.

PEDIATRICS

Delayed Effects Occurring Within the First Decade After Exposure of Young Individuals to the Hiroshima Atomic Bomb. R. W. Miller. Pediatrics 18:1-18 (July) 1956 [Springfield, Ill.]

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1:1,000. There are no cataracts that impair vision among the present pediatric group. An increased incidence of a mild visual disability, the cause of which is thus far indefinite, has been found among those now 16 through 19 years of age who were within 1,800 m. of the bomb center. The incidence of chronic otitis media is the same for the group exposed at 1,500 m. and under and the group exposed at 1,501-1,800 m., as are the means of the hematological values for the patients with this ailment. There is no increase in the tumor incidence in the exposed children as compared with the nonexposed. The impression is that among the survivors the fear of late effects may be common and potentially disabling, although there are no data to prove it. In 1954, doctors examined 2,771 people 19 years of age and younger who were within 3,000 m. of the hypocenter at the time of detonation of the bomb. Twenty-four of these had sequelae of the blast or of thermal effects of the bomb other than well-healed scars. No other abnormalities related to exposure have been identified.

Considerations on Anoxia Neonatorum. G. Murano. Pediatria 64: 161-187 (April) 1956 (In Italian) [Naples, Italy].

The author studied the intrinsic and extrinsic causes of anoxia neonatorum in the forms of anoxic anoxia and anoxia due to venous congestion. Complications arising during intrauterine life or during delivery are extrinsic causes. Nervous, pulmonary, hemochemical, and vascular changes are intrinsic causes. The records of 300 infants showed that anoxia occured in 90% of the prematurely born babies. It was severe in 60% of the cases. It was almost always due to intrinsic causes. All premature babies born after at least 6 months' gestation had some form of anoxia. The high concentration of fetal hemoglobin and the lower concentration of carbonic anhydrase must be regarded as symptoms of premature birth. They do not contribute, at least directly, to the anoxic conditions. Anoxia is the cause of death in many more cases than those in which it is registered. In 200 of 325 deaths, the records of which were examined, the author found that anoxia was also present in those babies whose death had been imputed to hemorrhage or sepsis. Anoxia causes neuropsychic disturbances that appear later in the life of the child. The electroencephalographic patterns of 10 such patients are reported to show that prophylaxis of anoxia neonatorum is also necessary from a social point of view.

DERMATOLOGY

The Treatment of Vitiligo with 8-Methoxypsoralen. J. A. Elliott Jr. South. M. J. 49:691-697 (July) 1956 [Birmingham, Ala.].

The Arabs have used a powder made from the fruit of the plant Ammi majus Linn. for the treatment of vitiligo for hundreds of years. Three psoralen derivatives—8-methoxypsoralen, 5-methoxypsoralen, and 8-isoamyleneoxypsoralen—have been isolated from the Ammi majus Linn. fruit; and these compounds have been used orally and locally, separately and in various combinations in the treatment of vitiligo since 1947. This report describes observations on 22 patients who had had vitiligo for from one month to 25 years. Half of the patients had had their depigmented lesions for more than six years. Their ages ranged from 8 to 55 years. Five of the patients were treated for four months in 1954 and for four months again in 1955. The remaining 17 patients were treated over a period varying from 2 to 4 months in 1955 only. Treatment during the summer of 1954 consisted of (1) oral administration of 10 mg. of 8-methoxypsoralen three times a day after meals; (2) exposure of the depigmented areas to sunshine at noon each day, increasing the time of exposure as tolerated; and (3) avoidance of foods with a high vitamin C content. Laboratory studies during this period included urinalysis, blood counts, cephalin-cholesterol flocculation tests, and the determination of urinary porphyrins and of the prothrombin time. During the summer of 1955, 20 mg. of 8-methoxypsoralen was given once a day two hours before exposure to sunshine; otherwise, the treatment was the same as during the previous summer. Either cephalin-cholesterol flocculation tests or serum Bromsulphalein tests were made.

Eighteen patients showed significant degrees of repigmentation. The amount of repigmentation seemed to be more dependent on the total time of exposure to sunshine and the location of the lesion than on the age of the patient, the duration of the disease, or the extent of involvement. The dorsum of the hands and feet showed less repigmentation than lesions over fleshy areas such as the face, abdomen, or axillas. Four patients did not show significant repigmentation, evidently because they did not cooperate adequately. Liver function tests in two patients were significantly abnormal after a period of treatment, forbidding further oral administration of 8-methoxypsoralen. Serum Bromsulphalein tests should be made throughout the period of treatment with 8-methoxypsoralen.

OTOLARYNGOLOGY

The Adenoid and its Relation to the Ear. L. W. Alexander. Laryngoscope 66:711-721 (June) 1956 [St. Louis].

Although the adenoid was once thought to be a completely functionless structure, there is now an increasing belief that the growing child requires nasopharyngeal lymphoid tissue for protection against infection. When, however, adenoid tissue has become hypertrophied, it not only cannot fulfill its normal function but also serves as a focus of infection. The presence of diseased adenoids may be followed by snuffling, nasal obstruction, mucopurulent nasal or postnasal catarrh, absence of nasal resonance, laryngeal stridor, suppuration of the accessory nasal sinuses, cervical adenitis, gastrointestinal disturbances, defective growth and backwardness, inability to fix attention, neuroses, and systemic infections. Neglect of diseased adenoids may have an extremely serious effect upon the ear. Deafness that follows obstruction to the Eustachian tube by adenoid tissue may occur by several mechanisms: the membrana tympani may be indrawn or retracted; postnasal catarrh may spread along the Eustachian canal, with resulting acute and chronic otorrhea. The most dangerous variety of diseased adenoid tissue is the soft, diffuse type, which is apt to become inflamed and suppurative and to cause middle-ear disease and eventual auditory impairment.

It may sometimes be difficult to decide whether or not to remove the adenoids, but removal should be carried out without delay (1) if enlarged adenoids are present in association with chronic suppurative otitis media, and (2) if auditory impairment is present in association with even minimum adenoid vegetations. Unless the removal of the adenoids is carried out with careful attention to technical details, portions of the hypertrophied structure will inevitably be left in situ. The author describes the surgical technique, pointing out that inadequate surgical removal is the most important cause of recurrence. If postoperative recurrence of nasopharyngeal lymphoid tissue gives rise to symptoms, secondary surgery is usually preferable to irradition.

THERAPEUTICS

Results of Treatment of Angina Pectoris with Choline Theophyllinate by Double-Blind Method. C. Aravanis and A. A. Luisada. Ann. Int. Med. 44:1111-1122 (June) 1956 [Lancaster, Pa.].

Treatment of angina pectoris is a difficult problem. Nitroglycerine gives rapid temporary relief, but choline theophyllinate has been said to cause a lasting improvement in patients with coronary heart disease and anginal pain, far greater than that obtained with aminophylline and without producing symptoms of intolerance. Clinical investigations were made in 72 ambulatory patients selected at random from the cardiac clinics of Mount Sinai Hospital, Chicago, most of whom were in older age groups. Choline theophyllinate was tried in 42, while 28 received only placebos (sugar pills) of the same weight and color. No suggestive influence was involved in the results, because the double-blind method was used. No sedative effect was observed, and tolerance was good. From the onset of therapy with choline theophyllinate, all other drugs were withdrawn except for nitroglycerin when there was severe pain. Choline theophyllinate was given by mouth in doses of 3 200-mg. tablets daily. A remarkable increase in tolerance to

inability to lead a normal life interferes with his scholastic or professional career, even though the attacks are infrequent and the disease of long standing. The "temporal" localization of the epilepsy, however, must be well established before the operation is undertaken. No justification can be found for an intervention in patients with long-standing epilepsy in whom the attacks are infrequent and sufficiently controlled by medication not to interfere with a normal life. The operative indications in patients with diffuse or extensive lesions in whom temporal crises are associated with an intellectual deficit or mental retardation and personality disturbances are less clearly defined. Both the epilepsy and the associated defects will be greatly helped by operation in some of these patients; in others, the patient's general status may remain more or less unchanged while the epilepsy alone is relieved. The percentage of improvements and cures obtained in these patients will not be so high as it is when epilepsy alone is present; nevertheless, operation is indicated in many of these cases because it may transform the existence of patients who would otherwise have to undergo long periods of hospitalization.

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The Treatment of Vitiligo with 8-Methoxypsoralen. J. A. Elliott Jr. South. M. J. **49**:691-697 (July) 1956 [Birmingham, Ala.].

The Arabs have used a powder made from the fruit of the plant Ammi majus Linn. for the treatment of vitiligo for hundreds of years. Three psoralen derivatives—8-methoxypsoralen, 5-methoxypsoralen, and 8-isoamyleneoxypsoralen—have been isolated from the Ammi majus Linn. fruit; and these compounds have been used orally and locally, separately and in various combinations in the treatment of vitiligo since 1947. This report describes observations on 22 patients who had had vitiligo for from one month to 23 years. Half of the patients had had their depigmented lesions for more than six years. Their ages ranged from 8 to 53 years. Five of the patients were treated for four months in 1954 and for four months again in 1955. The remaining 17 patients were treated over a period varying from 2 to 4 months in 1955 only. Treatment during the summer of 1954 consisted of (1) oral administration of 10 mg. of 8-methoxypsoralen three times a day after meals; (2) exposure of the depigmented areas to sunshine at noon each day, increasing the time of exposure as tolerated; and (3) avoidance of foods with a high vitamin C content. Laboratory studies during this period included urinalysis, blood counts, cephalin-cholesterol flocculation tests, and the determination of urinary porphyrins and of the prothrombin time. During the summer of 1955, 20 mg. of 8-methoxypsoralen was given once a day two hours before exposure to sunshine; otherwise, the treatment was the same as during the previous summer. Either cephalin-cholesterol flocculation tests or serum Bromsulphalein tests were made.

Eighteen patients showed significant degrees of repigmentation. The amount of repigmentation seemed to be more dependent on the total time of exposure to sunshine and the location of the lesion than on the age of the patient, the duration of the disease, or the extent of involvement. The dorsum of the hands and feet showed less repigmentation than lesions over fleshy areas such as the face, abdomen, or axillas. Four patients did not show significant repigmentation, evidently because they did not cooperate adequately. Liver function tests in two patients were significantly abnormal after a period of treatment, forbidding further oral administration of 8-methoxypsoralen. Serum Bromsulphalein tests should be made throughout the period of treatment with 8-methoxypsoralen.

OTOLARYNGOLOGY

The Adenoid and its Relation to the Ear. L. W. Alexander. Laryngoscope **66**:711-721 (June) 1956 [St. Louis].

Although the adenoid was once thought to be a completely functionless structure, there is now an increasing belief that the growing child requires nasopharyngeal lymphoid tissue for protection against infection. When, however, adenoid tissue has become hypertrophied, it not only cannot fulfill its normal function but also serves as a focus of infection. The presence of diseased adenoids may be followed by snuffling, nasal obstruction, mucopurulent nasal or postnasal catarrh, absence of nasal resonance, laryngeal stridor, suppuration of the accessory nasal sinuses, cervical adenitis, gastrointestinal disturbances, defective growth and backwardness, inability to fix attention, neuroses, and systemic infections. Neglect of diseased adenoids may have an extremely serious effect upon the ear. Deafness that follows obstruction to the Eustachian tube by adenoid tissue may occur by several mechanisms: the membrana tympani may be indrawn or retracted; postnasal catarrh may spread along the Eustachian canal, with resulting acute and chronic otorrhea. The most dangerous variety of diseased adenoid tissue is the soft, diffuse type, which is apt to become inflamed and suppurative and to cause middle-ear disease and eventual auditory impairment.

It may sometimes be difficult to decide whether or not to remove the adenoids, but removal should be carried out without delay (1) if enlarged adenoids are present in association with chronic suppurative otitis media, and (2) if auditory impairment is present in association with even minimum adenoid vegetations. Unless the removal of the adenoids is carried out with careful attention to technical details, portions of the hypertrophied structure will inevitably be left in situ. The author describes the surgical technique, pointing out that inadequate surgical removal is the most important cause of recurrence. If postoperative recurrence of nasopharyngeal lymphoid tissue gives rise to symptoms, secondary surgery is usually preferable to irradition.

THERAPEUTICS

Results of Treatment of Angina Pectoris with Choline Theophyllinate by Double-Blind Method. C. Aravanis and A. A. Luisada. Ann. Int. Med. **44**:1111-1122 (June) 1956 [Lancaster, Pa.].

Treatment of angina pectoris is a difficult problem. Nitroglycerine gives rapid temporary relief, but choline theophyllinate has been said to cause a lasting improvement in patients with coronary heart disease and anginal pain, far greater than that obtained with aminophylline and without producing symptoms of intolerance. Clinical investigations were made in 72 ambulatory patients selected at random from the cardiac clinics of Mount Sinai Hospital, Chicago, most of whom were in older age groups. Choline theophyllinate was tried in 42, while 28 received only placebos (sugar pills) of the same weight and color. No suggestive influence was involved in the results, because the double-blind method was used. No sedative effect was observed, and tolerance was good. From the onset of therapy with choline theophyllinate, all other drugs were withdrawn except for nitroglycerin when there was severe pain. Choline theophyllinate was given by mouth in doses of 3 200-mg. tablets daily. A remarkable increase in tolerance to

free exertion was noted in 30% of the patients after two weeks of choline theophyllinate treatment and in 50% after four weeks of this treatment. The number of steps tolerated without discomfort increased. A decrease was also found in the number of attacks of pain and in their severity. Slight side-effects, consisting of nausea in five patients, dizziness in two, decrease in appetite in one, and a feeling of tremor in one, were noted at first, but these effects disappeared when the dose was temporarily decreased from 3 to 2 tablets a day. Most of the patients treated with the placebo showed no improvement, although a few (less than one-third) had a very slight improvement. Nearly one-third of those given choline theophyllinate, on the other hand, had a definite improvement, and over one-fifth had an excellent improvement. Consideration of the mechanism of the action of the drug leads to the conclusion that the effects it produces are not due to vasodilating action. Three possible effects are discussed: decreased load on the left ventricle, production of enzymes in the myocardium, or inactivation of pressor amines in the heart muscle. The last two would improve the utilization of oxygen by the heart. However, no conclusion has been reached in regard to the action of the drug.

Changing Concepts in the Management of Poisonous Animal Injuries: A Plea for Better Management. R. J. Antos. Southwestern Med. 37:418-421 (July) 1956 [El Paso, Texas].

Antos shows that, whereas relief of pain and sedation have been the chief factors in the currently accepted methods of treating bites and stings of poisonous animals, it has become evident in recent years that morphine and meperidine and most likely other narcotics as well are contraindicated, because it has been shown in experiments with animals and in trials with humans that the toxicity of venoms is increased by narcotics. Experimental studies on animals demonstrated also that chilling of the site of inoculation of the venom can slow down the absorption enough to enable the normal detoxification mechanisms of the body to cope more effectively with the poison. Application of a tourniquet, or impeding of the superficial venous and lymphatic return even by simple pressure will slow down absorption of the poison. The combination of the two methods proved still more effective than either method alone. The author is definitely in favor of chilling. At first only ice-water immersion was used. Then pressure or light intermittent application of a tourniquet was added. Gradually, the length of time of tourniquet application was lengthened from five-minute intervals, until now the tourniquets are left on for a half hour or more at a time. For first-aid measures, ethylchloride spray was used until ice could be obtained. Recently Frigiderm, which is dichloro-tetrafluoro-ethane, was found to be superior to ethylchloride. It is nonexplosive and nonflammable, is not an anesthetic, and does not require refrigeration. It can be kept in a first-aid kit.

The treatment of patients who have sustained venomous stings or bites and in whom the origin of the venom is not known is carried out in the following manner: (1) a moderately firm tourniquet is applied at once; (2) the site of the bite is chilled; and (3) calcium salts are injected intravenously. If peripheral pain is relieved immediately by calcium, the chances are strongly in favor of a black widow spider bite. If the calcium does not relieve peripheral pain, then the tourniquet and chilling alone are used; otherwise, further calcium is given as needed. This procedure has been used with favorable results in 27 cases during the past year.

Acute Viral Hepatitis: Aureomycin Treatment. J. Solsona Conillcras. Med. clin. 26:343-350 (May) 1956 (In Spanish) [Barcelona, Spain].

Forty patients with acute viral hepatitis were observed. The disease was caused by blood transfusion in five cases. The majority of the patients were young adults. Aureomycin was given in doses of 0.25 gm. every three hours for 10 consecutive days. A man 66 years old died with acute hepatitis that did not respond to treatment. All the remaining patients recovered. The earlier the drug was given the better and more rapid were the results. When the treatment was started within the first five days of the disease, favorable changes in the subjective symptoms and in the general condition of the patient were observed as early as the second day of the treatment in 14 uncomplicated cases. Improvement continued as the treatment progressed; jaundice abated, diuresis increased, hepatomegaly rapidly diminished, and fever and tachycardia, if present, disappeared. The duration of the disease from appearance to disappearance of jaundice in the 14 patients averaged 18 days. In five patients who had the treatment within the first five days of the disease but who had complications as well as in the patients in whom treatment was started after the first five days of the disease, the results were equally favorable, but the symptoms abated slowly and the disease lasted longer than in the patients of the previous group. Among the patients with complications were one who developed a Loeper's syndrome of edema and jaundice and another with jaundice and ascites of long duration that were controlled by aureomycin. The author concludes that aureomycin is valuable in the treatment of acute viral hepatitis. The liver is not injured when the drug is given in the doses and schedules fixed by the author.

Treatment of Amebiasis with Resotren. L. Pfannemueller. Lancet 1:934-935 (June 16) 1956 [London, England].

Resotren is a chemical combination of chloroquine and iodohydroxyquinoline. It is poorly absorbed when taken by mouth and reaches the lower intestine in considerable concentration. About half of it is gradually broken down in the small intestine, releasing chloroquine and iodohydroxyquinoline, which are then absorbed. The remainer passes into the large intestine, where part of it is also split up; thus both chloroquine and iodohydroxyquinoline are brought to the site of infection, where they never are present in such amounts when given separately by mouth. The author presents observations on 42 patients with amebiasis whom he treated while in Iraq. Five of the patients had uncomplicated amebic dysentery, which was acute in three and chronic in the other two; all five were cured. In 31 patients the amebic dysentery was complicated by amebic hepatitis. The liver was palpable and generally enlarged to three finger-breadths below the costal margin, and pain on pressure was a constant finding. Treatment with resotren produced striking improvement in all patients: the liver returned to its normal size and the symptoms disappeared. In two patients cysts were still present in the stools at the end of treatment; two other patients were not examined at the end of the course. The remaining 27 had no cysts in their stools after treatment; 14 of them had previously been treated elsewhere with the broad-spectrum antibiotics, aureomycin, or oxytetracycline. Amebic liver abscess complicated the dysentery in 6 of the 42 patients with amebic dysentery. The clinical symptoms rapidly subsided, and trophozoites and cysts disappeared from the stools after treatment with the drug. A course of treatment usually consisted of 40 tablets given over a period of 12 days.

PATHOLOGY

Aneurysmal Bone Cyst. M. Cruz and B. L. Coley. Surg. Gynec. & Obst. 103:67-77 (July) 1956 [Chicago].

The literature on aneurysmal bone cyst is reviewed and the characteristic clinical, roentgenologic, and microscopic features of the lesion are presented. Twenty cases from the bone tumor department of the Memorial Center for Cancer and Allied Diseases are reported. There is sufficient evidence to support the theory that it may not be a true neoplasm and that it is definitely not a traumatically induced hematoma. The lesion is often mistaken for giant cell tumor and less frequently for juvenile bone cyst or bone angioma. The main practical consideration is to distinguish it from the telangiectatic type of osteogenic sarcoma and thus avoid unnecessary amputation. The treatment of choice is surgical eradication by curettage complemented by bone graft whenever necessary. Roentgen therapy should be reserved for surgically inaccessible lesions. Delay in treatment may result in severe damage to bones, joints, and soft parts and may eventually necessitate amputation. The authors have not observed any cases of spontaneous regression, and there are no well-documented examples of it in the literature.

BOOK REVIEWS

The Management of Menstrual Disorders. By C. Frederic Fluhmann, B.A., M.D., C.M., Clinical Professor of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco. Cloth. $8.50. Pp. 350, with 121 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1956.

This is the author's second book on menstrual disorders; the first one appeared in 1939. Even though some of the data and illustrations of the first book have been retained, this is a new book, with the emphasis on clinical management. The first chapter, which is most interesting, deals with a historical review of the concepts of menstruation. Fluhmann says that a negative influence is probably responsible for menstruation, not a substance that induces the bleeding. This formed the basis of Edgar Allen's "estrogen-deprivation" theory of menstruation. It is generally believed that the cyclic bleeding of Old World monkeys is the only variety that is identical with menstruation in the human being, but the author mentions the African "elephant shrew," a small rodent that some investigators believe undergoes a true menstrual process. Fluhmann is opposed to the use of vaginal tampons during menstruation when there is an intact hymen, and he says there is a real danger from a forgotten tampon in women who have had children. A simple, useful classification of disorders of menstruation and abnormal uterine hemorrhage is presented in which the main divisions are (1) ovulatory cycles, (2) anovulatory uterine hemorrhage, and (3) arrhythmic uterine hemorrhage. Each of these headings is further subdivided. A table of treatment of dysmenorrhea prepared by Erle Henriksen shows that good results were obtained in 79.2% of patients treated by a wide variety of procedures. This figure was reached after consulting 121 reports on the use of 93 different substances.

A chapter of great value to physicians in practice deals with clinical usage and commercial preparations of sex hormones. In this chapter are listed practically all the hormonal products that are available commercially, the names of the manufacturers, and the doses. The author uses the suffix "tropic" in preference to "trophic" and gives four reasons for this. He uses the term "progestins" to include not only purified progesterone but also natural and synthetic substances with luteoid properties or a chemical relationship. This scholarly book is full of valuable information about menstruation and its disorders. It is exceptionally well written. The data presented are based not only on the vast literature on this subject but also, and in great part, on the extensive and important investigations made by the author in the last 30 years. The lists of references at the end of each chapter are well chosen; the illustrations are numerous, clear, and instructive; and the book is well printed and sturdily bound.

Ciba Foundation Symposium Jointly with the Physiological Society and the British Pharmacological Society on Histamine. In honour of Sir Henry Dale, O.M., G.B.E., M.D. Editors for Ciba Foundation: G.E.W. Wolstenholme, O.B.E., M.A., M.B., and Cecilia M O'Connor, B.Sc. Cloth. 89. Pp. 472, with 133 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1956.

Almost 50 years ago Sir Henry Dale showed that the injection of histamine into a normal animal produced symptoms essentially identical with those of anaphylactic shock. This fascinating substance has been ultimately connected with the mechanism of the allergic reaction and inflammation and with some other bodily processes. Many men have spent almost a lifetime studying phases of activity of this substance and its source, site and manner of action, release, and inactivation. In the last few years this work has been intensified, and, with newer chemical methods, isotope labeling, chromatography, and other modern techniques, progress in information about the significance of histamine has been rapid. This book constitutes a report of the papers and discussion on histamine held at a symposium in April, 1955, at the Wellcome Foundation and at the Ciba Foundation in London. The participants were outstanding investigators on this subject from many parts of the world. Among them were Sir Henry Dale, in whose honor this symposium was held; William Feldberg and W. D. M. Paton of London, England; Charles Code of the Mayo Foundation, Rochester, Minn.; J. H. Gaddum of Edinburgh, Scotland; F. C. McIntosh of Montreal, Canada; Floyd McIntire of North Chicago, Ill.; M. Rocha e Silva of São Paulo, Brazil; Bernard N. Halpern of Paris, France; E. A. Zeller and Richard Schayer of Chicago; and many others.

The book deals with the occurrence of histamine in the body, release of histamine, the origin and significance of histamine in the body, the origin and fate of histamine in the body, and the location of histamine in the body. The first three parts, presented at the Wellcome Foundation, contain no discussion. The last two parts, presented at the Ciba Foundation, contain extensive discussion by the participants. Many of the papers contain material hitherto unpublished. The discussions, which add immensely to the value of the book, give the reader the benefit of actual attendance at these symposiums and the privilege of listening to an exchange of ideas by these masters. This book represents the world's knowledge about the subject of histamine. For those interested in allergic processes, hypersensitivity phenomena, inflammation, the biochemistry of such an important substance, and physiology and biochemistry in general, this book is invaluable.

Youth: The Years from Ten to Sixteen. By Arnold Gesell, M.D., Frances L. Ilg, M.D., and Louise Bates Ames, Ph.D. From Gesell Institute of Child Development and from Yale Clinic of Child Development. Cloth. $5.95. Pp. 542. Harper & Brothers, 49 E. 33rd St., New York 16, 1956.

This is the third volume in a series on the personality development of children. The other two are "Infant and Child in the Culture of Today" (1943) and "The Child from Five to Ten" (1946). This study is an analysis of 115 children who were seen repeatedly throughout adolescence and 50 children who were seen at only one age. Thus, from 60 to 88 children were observed at each age. Altogether there were 550 contacts with these children over a period of 12 years. No attempt has been made to determine a norm or average but only to establish the sequence of events observable during the development of a personality. The book is divided into three major portions. The first is largely introductory and explanatory; the second gives a complete picture of adolescent thinking and behavior during the years designated; and the third reveals the trends of maturity by describing the observed sequences of growth in a longitudinal perspective throughout the seven-year period for each of nine major areas of behavior development. These areas include the total action system, self-care and routines, emotions, the growing self, interpersonal relationships, activities and interests, school life, ethical sense, and philosophical outlook. By this technique, one is able to compare a child in one age zone with a child in another age zone in terms of similarities and differences, as well as to observe the changes that characterize developing maturity in each of the nine areas named. Anyone concerned with youth should profit by having this volume available for ready reference, since it is a careful description of the characteristics of youth based on extensive study by skilled observers.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

USE OF POLIOMYELITIS VACCINE AFTER EXPIRATION DATE

To the Editor:—*Please comment on the efficacy of poliomyelitis vaccine used one or two months past its stated expiration date. For several months, only expired vaccine was available to us in this community and we were reassured by the public health department that efficacy of the vaccine was retained. Recently, certain drug houses have warned against such a product. In the event that the vaccine used under these conditions is noneffecacious, should the injection be repeated?*

John R. Eggleston, M.D., Danville, Va.

Answer.—Unpublished studies on vaccine stability indicate no detectable reduction in potency over the interval indicated when storage was at the prescribed temperature for normal refrigeration.

IODIZED OIL AND BRONCHIECTASIS

To the Editor:—*What is the rationale of using instillations of iodized oil (Lipiodol) into the tracheobronchial tree for the treatment of bronchiectasis?*

R. R. Grayson, M.D., Perryville, Mo.

Answer.—A number of years ago intratracheal injections of iodized oil were recommended and quite widely used in the treatment of bronchiectasis. The results were disappointing. Occasionally a patient was markedly benefited, but most patients noticed little if any improvement. The procedure has now been almost completely abandoned. The instillation of antibiotic solutions and the inhalation of antibiotic vapors or dusts, together with the use of such sputum solvents as Alevaire and Tryptar, are much more effective.

HYPERTHYROIDISM

To the Editor:—*A 30-year-old woman, para 2, gravida 2, complained of swelling of the neck, "stary eyes," tired feeling, nervousness, and pain over the heart for one year. Examination revealed a soft, smooth, palpable thyroid with moderate exophthalmos; areas of vitiligo of the neck and hands; pulse rate, 142 per minute; temperature, 98.6 F (37 C); basal metabolic rate, +44%; and urine and complete blood cell count, within normal limits. She was placed on therapy with propylthiouracil, 100 mg. three times a day, and strong iodine (Lugol's) solution, with pulse rate dropping to 84 per minute in about one month. Treatment with strong iodine solution was stopped, and in two months the pulse rate was down to between 66 and 72 per minute. The medication was diminished to 50 mg. three times a day and in another month to 50 mg. daily. Seven months after start of medication, she was placed on therapy with 50 mg. every other day, until the past four months, when she was getting 50 mg. every third day. After more than two weeks with no medication, radioactive iodine uptake was 70%, showing a moderate hyperthyroid condition. The pulse rate has remained down to 72 to 80 per minute, the exophthalmos has markedly diminished, skin pigmentation has cleared remarkably well, and the patient feels well and has gained weight. What is the next procedure?*

Louis L. Dolinsky, M.D., Woodside, L. I., N. Y.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Too much reliance should not be placed on an increased uptake of radioactive iodine as indicating persistence of hyperthyroidism, particularly when the patient has recently been taking an antithyroid drug, because the antithyroid drug in itself can increase the uptake even of a normal thyroid. In the absence of any clinical evidence of recurrence of the hyperthyroidism, it might be best to give no further treatment for the present but to keep the patient under close observation. If frank clinical recurrence of the hyperthyroidism takes place, the choice lies between another trial on medical management, to which the patient responded very well before, elective thyroidectomy after the hyperthyroidism has been again controlled by use of a combination of iodine and propylthiouracil, or treatment with radioactive iodine. There would be little agreement among authorities in the field as to which of the three methods would be preferable in such a case, and the decision would probably have to be based to some degree on the availability of the various methods.

Answer.—Since your patient is clinically euthyroid at this time, this consultant would not advise surgery. It would be desirable to have other parameters of thyroid function, including determination of basal metabolic rate and, if feasible, a protein-bound iodine determination. The patient could then be observed for a month and the studies repeated. If, according to these parameters and the clinical picture, she is still hyperthyroid, a prolonged course of propylthiouracil therapy for as long as a year would be indicated, particularly since the patient made such an excellent response previously. If at any time the patient becomes markedly hypothyroid, this medication could then be stopped sooner.

IMMUNE GLOBULIN AND SALK VACCINE

To the Editor:—*What is the effect of an attenuative dose of immune globulin on the antibody response in poliomyelitis if given during the course of immunizing with Salk vaccine? The patient in question was given an attenuative dose of measles immune globulin about one week after the second Salk injection (1 cc.). A local pediatrician has criticized this and told the patient's parents that the "measles shot" cancelled out the second Salk shot. Is this true?*

M.D., Tennessee.

Answer.—Passively administered antibody, through the use of immune globulin, in no way affects antibody formation as a result of poliomyelitis vaccine. The passively acquired antibody disappears in about six weeks—but, even during the period of retention, it in no way interferes with the antibody-inducing capacity of the vaccine.

RECURRENT PERIVULVAR ABSCESSES

To the Editor:—*A 3-year-old girl for the past year has had recurrent perivulvar and perirectal abscesses. Her mother has been similarly involved over the same period of time. Both have been treated at times with various antibiotics with resolution of the abscesses, only to have them recur weeks or months later. Recently, after treatment of the little girl with antibiotics, Pseudomonas organisms were cultured from the abscess and an autogenous vaccine was prepared. What other suggestions would there be for therapy of this condition?*

Ronald Germain, M.D., Cincinnati.

Answer.—First, see which antibiotic best kills the organism by culture and give this antibiotic over an extended period of time. At the same time, give one of the safer sulfonamide drugs. Next, the urine should be checked for sugar. Local causes of irritation in the bladder, urethra, vagina, and rectum must be accounted for, i. e., Trichomonas or Candida (Monilia) organisms, foreign bodies, or worms. If the condition continues after the above routine, the blood proteins can be checked for globulin, especially gamma globulin. Some cases are reported where administration of gamma globulin helps stop the series. Until the irritation can be controlled, application of cold wet packs with Burow's solution (1 teaspoonful to one 8-oz. glass of water) usually cuts down the itching and burning that causes scratching and transfer of organism to another area. Hand cleanliness is also of some importance, especially under the nails. One should not lose sight of other possibilities, namely, improper or incomplete laundering of underclothing, allowing urine, soaps, detergents, or abscess material to remain

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

in the clothing without boiling, proper rinsing, and proper neutralization of alkalis. Tight, irritating underclothing also may be a factor in continuing the irritation. Many of the new detergents cause irritation in certain people.

FILARIASIS

To the Editor:—*What is the latest treatment for filariasis?*
M.D., North Carolina.

Answer.—Diethylcarbamazine (Hetrazan) citrate is the drug of choice for the treatment of infection with Wuchereria bancrofti and W. malayi and for loiasis. If treatment is directed to possible cure of the two former infections, a dosage of 2 mg. per kilogram of body weight three times daily for two to three weeks is recommended. For mass treatment designed to reduce microfilarial organisms to subinfective levels for mosquitoes, 100 to 200 mg. per day for adults and 50 to 100 mg. per dose per day for seven days is recommended for children of 5 years of age. The use of diethlycarbamazine in Loa loa infections is accompanied by allergic reactions in approximately 70% of cases, and, for this reason, the dose on the first day is 100 mg. and is progressively increased by 100 mg. per day until the fourth day. The maintenance dose of 400 mg. per day is continued for from 6 to 10 days. Allergic reactions are uncommon after the first course of treatment, and in subsequent courses the daily dose may be 400 mg. a day for 10 to 14 days. Diethylcarbamazine should not be used in the treatment of onchocerciasis, where there is active involvement of the eyes. The drug of choice for the treatment of the latter infection is suramin. This drug causes death of the above worms and slow disappearance of the microfilarial organisms. For this reason severe allergic reactions are much less frequent than after treatment by diethylcarbamazine, which causes rapid death of large numbers of microfilaria. Suramin is administered intravenously in doses of 0.5 gm. to 1 gm. dissolved in 10 ml. of sterile water once a week for eight weeks.

VEGETABLE IVORY DUST

To the Editor:—*A patient has an x-ray showing diffuse fibrosis of the lungs. Might he have pneumonoconiosis? His occupational history reveals, as the only possible agent to which he has been subject, dust from "vegetable ivory," a material used for the making of buttons. Has this material been incriminated in pneumonoconioses?*
R. C. Garby, M.D., St. Petersburg, Fla.

Answer.—Vegetable ivory is the nut-like seed of more than one South American palm but, chiefly, Phytelephas macrocarpa. The shaping of this hard substance into useful objects such as buttons may lead to much fine dust. On inhalation, this dust will not produce a significant pneumonoconiosis. Almost any of the so-called nuisance dusts, after prolonged and severe inhalation, may alter the usual appearance of the x-ray of the lung. Such condition constitutes a benign pneumonoconiosis but causes no disability and is essentially harmless. It is surmised that vegetable ivory may act as an allergen, thus possibly paving the way for asthmatic attacks on reexposure. Conditions other than the pneumonoconioses may provide excessive pulmonary fibrosis—histoplasmosis, for example.

HAZARD IN USING OXYTOCICS IN PROLONGED LABOR

To the Editor:—*What is the present opinion in obstetric practice on the use of intravenously given Pitocin as a routine in prolonged labor?*
M.D., Pennsylvania.

Answer.—Prolonged labor is the result of many factors. It may be brought about by cephalopelvic disproportion, failure of the occiput to rotate anteriorly in cephalic presentation, abnormal presentations such as breech and deflection attitudes, or an uncoordinated and ineffective uterine mechanism that fails to accomplish normal cervical effacement and dilatation. The most important part of the successful management of this complication is to determine why the progress of labor has been delayed. Obviously the stimulation of uterine activity by an oxytocic drug is not the answer to the problem in most patients. The patient should have a careful pelvic examination to determine the cause of the prolonged labor. Disproportion, malpositions, and abnormal presentations should be ruled out and the relationships of the presenting part to the pelvis and the state of the cervix determined. It may be necessary to obtain an x-ray study to help in the proper evaluation of the patient. In most instances such simple measures as sedation in the exhausted patient or the timely rupture of the membranes in others may expedite the labor and bring it to a successful conclusion. The general practitioner and the casual obstetrician should avail themselves of consultation before resorting to the intravenous administration of Pitocin. It is useful in the patient who exhibits uterine inertia due to ineffective, uncoordinated uterine activity in the presence of normal fetal-pelvic relationships. It can be disastrous for the mother or the baby when used indiscriminately. The physiological method of administering pituitary extract has not abolished the hazards of oxytocic drugs in labor.

NODULES IN THE SCROTUM

To the Editor:—*The tissue committee of this hospital desires an opinion on the correct management of a palpable nodule in the scrotum. The major problem concerns the diagnosis and treatment. Do you feel that each nodule, which might represent a neoplasm, should be treated by orchiectomy and the diagnosis made from the tissue thus removed, or do you feel that surgical procedure short of orchiectomy should be performed in establishing the nature of the underlying disease causing the nodule?*
Robert J. Furie, M.D., Frederick, Md.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—A surgical procedure, namely biopsy, should be done for palpable nodules within the scrotum. Orchiectomy, with inguinal ligation of the cord, should be carried out only if indicated by the report on the biopsy. Only in instances of large, hard, obvious tumors of the testis is orchiectomy indicated prior to biopsy.

Answer.—There are far too many benign lesions in the scrotum to warrant routine orchiectomy for all nodules. The testis and its appendages can best be explored by making a low inguinal incision, applying a rubber shod clamp to the spermatic cord, and then delivering the scrotal contents for further examination, including biopsy and frozen section. Much of the uncertainty regarding the nature of such nodules can be clarified, however, by careful differentiation between nodules that are actually in the epididymis rather than in the testis per se.

HIGH BLOOD SUGAR LEVEL IN DIABETIC WOMAN

To the Editor:—*A 54-year-old diabetic woman repeatedly has fasting blood sugar levels around 300 mg. per 100 cc., with no associated glycosuria. Physical examination is within normal limits for her age. There is no apparent kidney disease. On a diet of 150 gm. of carbohydrate, 70 gm. of protein, and 70 gm. of fat per day and a morning insulin dosage of 20 units of isophane insulin and 10 units of regular insulin there is usually no glycosuria. Occasionally there will be 4 + glucose in the morning specimen. In the absence of glycosuria (except when the blood sugar level is above 300 mg. per 100 cc.) what is the best method of controlling the hyperglycemia? If it is not controlled, how dangerous is it?*
Edward W. Grove, M.D., Tucson, Ariz.

Answer.—A fasting blood sugar level of 300 mg. per 100 cc. is much too high to be permitted as a habitual level. The absence of glycosuria under these conditions suggests a considerable impairment of renal function, which may or may not be apparent by the usual tests. Although it is difficult to prove that blood sugar concentrations of this magnitude are immediately harmful, they are certainly abnormal and ought to be reduced. A reasonable procedure would be to omit the unmodified insulin and start with 30 units of isophane or lente insulin daily, with the blood sugar level both before breakfast and three hours after lunch being determined at the end of a week. If both determinations are elevated, the dose of insulin should be increased by 5 or 10 units at weekly intervals until either the morning or the afternoon blood sugar level is in the neighborhood of 150 mg. per 100 cc. This could then be presumed to be the maintenance dose, unless a marked change in the patient's condition should occur. For example, an appreciable loss of

weight might well lead to a rather sudden reduction in the requirement for insulin. After stabilization in cases of this kind, the blood sugar level should be determined every one to three months.

CHRONIC PERIMEATITIS

To the Editor:—*A 60-year-old female patient has been sent in the past two years to three genitourinary and gynecology specialists who did biopsies in an unsuccessful effort to cure a painful condition about her urethral os. Catheterized urine yields no white blood cells and negative cultures, and yet these areas just inside the labium minus remain. They are not elevated; they look like hemorrhagic areas about 1 cm. in diameter and very "angry," but the actual surface is smooth, glistening, and unbroken. The coloring is about what one sees in the fundus of the eye in a fresh hemorrhage. Any suggestions will be anxiously awaited.*

M.D., Virginia.

Answer.—Judging from the description of the periurethral area, the lesion is due to chronic perimeatitis. As a rule, this condition is not painful if left alone. However, it may become hypersensitive as a result of overtreatment or when subjected to trauma of intravaginal nature. Perimeatitis often is helped by 10% Argyrol packs applied morning and night for several weeks. Other cases have been relieved by application of 3% ointment of Aureomycin. Surgical treatment is not indicated in conditions of this kind, providing, of course, that a biopsy has excluded the possibility of malignancy.

SCHIZOPHRENIA

To the Editor:—*How effective is nonconvulsive electroshock therapy with Pentothal in cases of schizophrenia? Are there any serious side-effects from its use? Do patients who are moody, nontalkative, and depressed and who have been mentally ill for many years respond to this therapy? A quick response to this query would be appreciated.*

Nat Kanner, M.D., Brooklyn, N. Y.

Answer.—In cases of schizophrenia, for "patients who are moody, nontalkative, and depressed and who have been mentally ill for many years," the ideal treatment should be a combined convulsive and insulin hypoglycemic treatment, with deep insulin comas lasting about 60 minutes each, five times a week; twice a week, at the depth of the coma, electric shock treatment should be administered to the patient just before terminating the coma. Even with this most energetic form of treatment, one cannot assume more than about 15 to 20% probability of a favorable response in patients who have been ill for many years. Nonconvulsive electroshock therapy is not considered the most effective treatment in schizophrenia.

DIGITALIZATION OF SMALL CHILDREN

To the Editor:—*I would like to obtain a dosage schedule for digitalization, using particularly digitoxin, Digalen, and digoxin in infants and children. I would like to know the oral, intramuscular, and intravenous doses. There is considerable variation in the literature about the average required dosage.*

Walter B. Watson, M.D., Casper, Wyo.

Answer.—Infants and small children may be rapidly digitalized with lanatoside C (Cedilanid), using a calculated dose of 0.02 mg. per pound of body weight, divided into three equal doses given intramuscularly or intravenously at six-hour intervals. If rapid oral digitalization is preferred, digoxin may be given in a total dose of 0.04 mg. per pound, divided into three equal doses at six-hour intervals. Digitalization may be accomplished more slowly with digitoxin, or a whole leaf preparation, such as Digalen. The initial digitalizing dose of digitoxin may be calculated on the basis of 0.02 to 0.03 mg. per pound of body weight and given in three doses at daily intervals. If a whole leaf preparation is used, the total dose will be 0.02 gm. per pound, to be given over a three-to-four-day period. Maintenance digitalization may usually be accomplished with whole leaf digitalis or digitoxin, using about one-tenth of their respective digitalizing doses daily. With these preparations, it is possible, and often advantageous in infants, to administer a double dose every second day. Maintenance dosage with digoxin is based on daily administration of about 30% of the initial digitalizing dose. It should be emphasized that the above dosage schedules are generalizations and that individual response and tolerance of patients to these drugs may be quite variable.

ASYMMETRY OF FACE FOLLOWING POLIOMYELITIS

To the Editor:—*A child, 4½ years of age, suffered an attack of acute anterior poliomyelitis when she was 2½ years old. As the sole sequel to the disease, there remained a right facial nerve paralysis that causes asymmetry of the face during speech, smiling, and laughter. The face looks flattened out, the corner of the mouth droops, and the eyelid cannot be closed; in the forehead the motor defect is minimal. This situation has been stationary for one and one-half years. Besides the obvious esthetic problem, the paralysis causes no other disturbance. If plastic surgery is indicated in this case, which would be the elective technique? What are the immediate and long-term cosmetic results of the operation? At what age would it be best to perform the operation? Is a postoperative regimen of muscular reeducation indispensable? What is the percentage of operative failures?*

M.D., Israel.

Answer.—This patient should be given the benefit of plastic surgery treatment of her deformity at this time. Two basic procedures are indicated. The first consists in supporting the paralyzed side of the face with autogenous strips of fascia lata. The second is to perform a lateral tarsorrhaphy to give additional support to the paralyzed eyelids. The operation can be done at any time, in fact the earlier the better. Muscular reeducation is extremely important. The percentage of operative failures is practically negligible when the procedure is done by a plastic surgeon familiar with this type of work.

USE OF DENTURE POWDER

To the Editor:—*Could there be chronic systemic poisoning from a denture powder containing sterculia gum, alkalized with sodium borate, particularly in relation to liver and kidney damage? Is there any evidence that such a preparation might be carcinogenic in relation to the liver and pancreas?*

J. M. Lichty, M.D., San Diego, Calif.

Answer.—The occasional cancer related to artificial dentures usually is attributed to mechanical rather than chemical action. The presently employed plastics in dentures are not regarded as carcinogenic. Sterculia gum closely resembles tragacanth. The latter enters so many comestibles that its lack of damaging properties has been established through wide use. Notwithstanding, tragacanth is a recognized sensitizer and thus is responsible for some food allergies. It is presumed that this is true for the kindred substance sterculia gum. Sodium borate, likewise, has been introduced into so many products for human use that its relative harmlessness is well established. When the quantity daily entering the digestive tract is less than 0.5 gm., no damage is expectable. The action of a much larger intake such as 3 gm. is likely to be limited to minor digestive affronts, unless continued for long periods. The proper use of a denture adhesive containing sodium borate may not lead to other than trifling and innocuous exposure.

CATGUT SUTURES

To the Editor:—*What is the finest size catgut suture made? What suture material and what size is best used to suture the subcutaneous tissues of facial skin, this suture material to be buried and absorbed? How long will it take to be absorbed?*

M.D., Rhode Island.

Answer.—The finest size catgut suture is size 000000, with a diameter of about 4.0 mils. The usual size suture used for subcutaneous facial tissue is 00 or 000, but with modern sutures it is probably safe and preferable to use 0000 or even 00000. Plain (type A) catgut is usually used and the smaller the size the less the likelihood of important tissue reaction. It is suggested that an atraumatic attached 3/8 circle reverse cutting needle be used in order to minimize damage to delicate tissues. It is difficult to give a precise time of absorption, since this depends upon circulation in the area sutured, presence or absence of infection, and presence or absence of postoperative fever. The average absorption time is from 10 to 15 days.